Gene-Environment Interaction and Coronary Artery Disease: Do OLR1 Gene Polymorphisms Modify the Cardiovascular Effects of Traffic Exposure?

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Abstract

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Background: An association between residential proximity to roadway and coronary artery calcium score (CAC) has been previously described. CAC is a measure of coronary artery calcification that reflects the extent of atherosclerosis. Understanding individual susceptibilities to air pollution's detrimental effects would be improved with a better understanding of genetic influences on the association between air pollution and atherosclerosis. OLR1 is a gene that produces an endothelial cell surface scavenger called the lectin-type oxidized LDL receptor 1(LOX-1). LOX-1scavenges oxidized low-density lipoprotein (oxLDL); its involvement in atherosclerosis progression is supported by prior studies. Demonstrating the role of OLR1 polymorphisms in the air pollution / atherosclerosis relationship may improve understanding of coronary artery disease and air pollution. **Methods**: Genetic data, CAC score and residential distance to roadway for 5222 participants of the Multi-Ethnic Study of Atherosclerosis (MESA) were used to determine if the relationship between CAC score and distance to major roadway is modified by eleven different OLR1 single nucleotide polymorphisms (SNPs). Linear and logistic regression models were used. Model interaction terms assessed effect modification by the OLR1 polymorphisms. **Results**: Analysis for main effect of roadway distance on CAC provided no evidence of an association; there was also no evidence of interaction by OLR1 polymorphisms. However, a stratified analysis showed that the Baltimore site demonstrated a significant distance to roadway / CAC association (p-value=0.001). One SNP of the OLR1 gene, rs11053653, demonstrated interaction using only the data from the Baltimore site. The p-value for this interaction was 0.012 (q-value < 0.2). **Conclusions**: Analysis of eleven SNPs of the OLR1 gene does not provide evidence of a modifying effect in the association between

traffic exposure and CAC by OLR1 polymorphisms. One result from a stratified analysis appears statistically significant, but is possibly from a type I error.

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INTRODUCTION

Coronary Artery Disease and Air Pollution

The association between air pollution exposure and detrimental health effects has been the subject of epidemiological studies going back decades. The results typically point to increased cardiopulmonary morbidity and mortality with increasing exposure to air pollution, but these results are not universal. Even studies that appear very similar with identical exposure and outcome variables can produce seemingly contradictory results (1,2,3). The reasons for this are likely twofold. First, exposure to air pollution is typically measured as concentration of particulate matter (PM) and/or gases. No study will ever be able to completely describe the chemical composition, size and morphology of all air pollution constituent parts: these vary dramatically over small intervals of time and place. Second, the population being studied will often share characteristics similar to other members in that population. Repeating studies with a different population may produce vastly different results because of underlying subject characteristics, such as genetic composition.

The influence gene polymorphisms have on air pollution's effects is poorly understood. There are likely many genes modifying the effect of air pollution on health. OLR1, as a gene involved in processing low-density lipoproteins damaged by oxidative processes, is a prime candidate for investigation. The oxidative processes that damage molecules like LDL are thought to be one aspect of air pollution's disruption of human physiology. A better understanding of genes involved in the link between air pollution and heart disease could guide future research and policy decisions.

Prior studies suggest that air pollution exposure influences many disease processes including blood pressure, myocardial ischemia, cerebrovascular ischemia, heart failure, myocardial conduction abnormalities, systemic inflammation, atherosclerosis and pulmonary malignancy (4,5,6,7). The association between air pollution and disease in the above named processes is likely multifactorial. Studies measuring the effects of acute exposure to air pollution's two primary components, gases and PM suggest that these components affect physiology differently and probably contribute differently to the development of chronic disease.

PM is categorized by the diameter of individual particles. The various diameter size fractions are represented with the letters "PM" followed by a subscript number representing diameter. PM_{10} is particulate matter of diameter 10μm and smaller, $PM_{2.5}$ is particulate matter of diameter 2.5μm and smaller, and $PM_{0.1}$ is particulate matter of diameter 0.1μm and smaller. This breakdown of PM seems inadequate since it tells nothing about the chemical composition of particles. But man-made PM is usually the result of combustion processes such as internal combustion engines producing exhaust; its chemical composition is predominately carbon. Some studies have further explored chemical composition of PM from particular combustion processes in particular geographical locations, but generalizability of these studies may be limited as the non-carbon chemical variability of PM varies greatly even with similar sources and PM size fractions (8,9,10).

The diameter of PM is of great significance for health as it determines how deeply into the respiratory tract particles can deposit. For the smallest particles it is feasible that they may reach the alveoli and interact with macrophages producing inflammatory responses. Transition metals embedded on the surface of the smallest fractions of PM could

theoretically enter systemic circulation and produce reactive oxygen species. One theory explaining the association of air pollution to heart disease describes increased atherosclerosis as being the product of lipids and other biological molecules being damaged by exposure to reactive oxygen species which then deposit on endothelial cells of the vasculature leading to a cascade of events causing damage to vascular endothelium.

The gas component of air pollution also has measurable effects on health. Research has tended to focus on PM as the principle culprit of air pollution's detrimental effects, but several gaseous pollutants, absent of any PM content do affect health. Human and animal studies of air pollution exposure using particulate-free gases show that blood pressure and cardiac electrophysiology changes occur even in the absence of PM (5,11). SO_2, NO_2 and O_3, all gases associated with air pollution have been shown to increase diastolic blood pressure while decreasing systolic pressure. Possible explanations for this reaction to particle-free air pollution include autonomic dysfunction and/or acute systemic inflammatory responses.

The mechanisms that lead from air pollution exposure to cardiovascular disease likely disrupt normal human physiology in three ways: 1. Autonomic dysfunction, 2. Inflammatory Response and 3.Free radical production.

Studies measuring autonomic dysfunction as a result of air pollution inhalation frequently use changes in heart rate variability as an indicator that the autonomic nervous system has been disrupted. The exact mechanism that produces this result is not fully understood, but changes in vagal tone secondary to changes in respiratory depth and rate seem plausible and have been posited as one explanation (12). Heart rate variability measured as a change in the standard deviation of normal interval to normal interval on EKG has shown progressive decreases with increased exposure to laboratory controlled PM (12).

Specific populations such as the elderly appear to be more sensitive to this effect. Other studies have shown less pronounced effects and effects that appear at different time intervals after exposure (13). The association between air pollution exposure and autonomic dysfunction is likely complicated by the variety of what constitutes an air pollution exposure and the unique biological characteristics of participants, including their genetic make-up.

The release of inflammatory cytokines by cells exposed to particulate matter has been observed in multiple in vitro studies (14,15,16). Exposing human bronchial epithelial cells to PM has been shown to produce increases in a pro-inflammatory cytokine with differential responses based on PM diameter. These results support the idea that PM produces an inflammatory response in the lungs and that the response differs based on PM diameter. This study and others support the idea that smaller particles apparently produce a stronger inflammatory response (3,15). The connection between pulmonary inflammation and cardiovascular effects is supported by a recent animal study showing that exposure to PM_{10} increases Interleukin-6 (IL-6), an inflammatory cytokine, in systemic circulation within hours after inhalational exposure (17). This increase in IL-6 is accompanied by vascular dysfunction measured as a decrease in responsiveness to acetylcholine. Epidemiological studies also show increase of inflammatory markers with increased air pollution exposure. A recent study of six different inflammatory markers in Beijing residents before and after improvements in air quality during the 2008 Olympic games show statistically significant decreases in inflammatory markers over four months (18). Another study found C-reactive protein (CRP) to be significantly higher in an obese Hispanic population exposed to higher concentrations of traffic at their residence, but not in other Hispanic groups (19). One important thing to note in both of these studies is the fact that statistically significant results

were found in populations that were less racially and geographically diverse than study populations for the Multi-Ethnic Study of Atherosclerosis: the source of the data for the analysis that will be performed here.

Another mechanism that could potentially contribute to the detrimental health effects of air pollution is the introduction of free radicals into systemic circulation. Free radical production is an intrinsic part of some aspects of the inflammatory response and is rarely considered as distinct from the inflammatory response in most research. It is considered separately here specifically because the theoretical proposition that OLR1 polymorphisms could modify the association between air pollution and atherosclerosis is largely dependent upon the idea that air pollution exposure induces the production of oxidized low-density lipoprotein. This will be discussed more thoroughly in the next section titled "Coronary Artery Disease and Genetics". One recent study that specifically investigated the role of oxidative stress showed depletion of an antioxidant enzyme with exposure to PM_{10} and $PM_{2.5}$. Erythrocyte superoxide dismutase (SOD) has been found to be reduced 41.5% in subjects who used indoor biomass fuel compared to those who did not (20). It is possible that the decrease is the result of leukocytes producing reactive oxygen species that use up SOD as opposed to the transfer of pro-oxidant particles into the circulation across the alveoli. The source of reactive oxygen species is not of primary concern to this discussion, but is an important difference in conceptualizing the many different pathways that progress from air pollution exposure to negative cardiovascular outcomes.

An established surrogate for air pollution exposure that has been used in many prior studies is residential distance to major roadway. The MESA dataset, which will be used for this analysis has been used to study possible effects of residential roadway distance. One

prior study using MESA data found an association between distance to major roadway and left ventricular mass (21). But another study using MESA data found no association between distance to roadway and abdominal aortic calcification (22). Although it should be noted that the abdominal aortic calcification was only determined for five of the six MESA sites. There is no single ideal model that is used when analyzing health effects of distance to roadway. Some studies have used a single cut off point such as greater than or less than one hundred meters. Some studies have used multiple cut off points. For example, one study out of Germany tried the single cut off point of one hundred meters and also four categories: 0 to 50m, 51 to 100m, 101 to 200m and >200m (7). Some studies use only data from subjects who live close or far and discard data from participants who live between cut off points. The study using MESA data that found an association between distance to roadway and left ventricular mass only used data from participants who lived very close to a major roadway (≤50m) and participants far from a major roadway (>150m). This refitting of models with different data sets is a necessity given the complicated interplay of vehicle types on roadway, temperature, weather, wind, surrounding buildings, vegetation and many other variables. Another important consideration supporting the use of multiple models is the rapid change in air pollution's makeup over short distances, especially changes in the prevalent PM diameter (23). Concentration of $PM_{2.5}$ decreases far more rapidly than larger fractions, but not all health effects obey the rule that smaller equals more toxic. Some negative health effects from PM could be worse with the PM_{10} fraction, particularly pulmonary effects (24).

Coronary Artery Disease and Genetics: The Role of LOX-1

Genetic polymorphisms influence the development of atherosclerosis. An extreme example of this would be familial hypercholesterolemia in which individuals develop significant atherosclerosis by the time they reach their 30s. This disorder is genetic, caused by a gene mutation that produces a defective LDL receptor. But genetic influences over atherosclerosis are rarely this overt. Without the red flags of obvious disease states researchers have still managed to find some genetic polymorphisms that show associations with cardiovascular disease (25). It has been proposed that some of these polymorphisms may explain the differences in rates of cardiovascular disease among different ethnic groups (26,27). The prevalence of OLR1 polymorphisms are different between Caucasian and African American populations (27). Whether these genetic differences explain the racial difference in cardiovascular disease rates is unresolved.

OLR1 has been the subject of multiple scientific papers in the last few years. At least one structurally different form of LOX-1 has been shown to influence incidence of cerebrovascular disease and acute myocardial infarction (28,29,30). The altered LOX-1 receptor is referred to as LOXIN in the literature. Its structural characteristics have been described: an alteration of its ability to bind oxidized LDL is the cause of vascular disease differences in individuals with the mutation. Other studies have also explored the role of LOX-1 in its role of scavenging oxidized LDL- one animal study showed that by blocking LOX-1 with antibodies that the cardiovascular damage caused by diesel exhaust inhalation could be reduced (31). The evidence suggests that polymorphisms of OLR1 have an effect on atherosclerosis development and that these polymorphisms could specifically alter the association between air pollution and atherosclerosis.

Gene-Environment Interaction

The model that is being proposed here to explain the role of OLR1 in modifying the relationship between air pollution and atherosclerosis is illustrated in Figure 1. The basic idea is that OLR1 SNPs, or differences in single nucleotides of the gene, can be used as markers to identify possible structural differences in the end product: LOX-1. If these SNPs are associated with differences in CAC, then they likely represent a form of LOX-1 that interacts with oxLDL in a different manner than the native LOX-1.

MESA provides the data for CAC and also other laboratory and clinical measurements that will be needed as possible covariates. Data from two other studies were needed to complete the primary analysis. Residential distance to roadway was obtained from the MESA Air Pollution Study. OLR1 SNP data were obtained from the MESA Candidate Gene Association Resource (CARe) data set.

METHODS

Primary Analysis

A cross-sectional study using the MESA cohort was undertaken. The MESA cohort consists of over 6500 participants recruited from six sites around the United States. Individuals from four different ethnic groups were targeted to provide a diverse study population. The make-up of the cohort for this study is 41% Caucasian, 26% African-American, 22% Hispanic and 11% Chinese-American. All participants were age 45-84 and without cardiovascular disease at the time of recruitment into the study. Multiple laboratory and clinical exam data were collected from each participant. Among these was the CAC score which was obtained by CT scan at the first appointment. Address for the primary residence was also collected and GIS software used to geocode the address. Distance to nearest major roadway was determined. Major roadways were defined using census feature class codes. Interstates, U.S. highways, state highways and county highways were all included as major roadways.

For this study the initial data set included 6814 participants from MESA. Exclusionary criteria included unavailability of data needed for the analysis: distance to roadway, CAC score, OLR1 SNP data, smoking status, systolic blood pressure, high-density lipoprotein (HDL) or total cholesterol. Any person who had not lived at their residence for at least one year at the time of the first exam was also excluded. A longer history of time at residence would have been preferable, but at the time of analysis the available data set only provided data going back one year from time of first exam.

A CAC score was unavailable for one participant. Distance to major roadway was unavailable for 180 and an additional 858 were found to have been at their residence less than one year or to have incomplete information about time at residence. Of the remaining participants 483 individuals had no OLR1 data and another 70 had incomplete data: missing at least one OLR1 SNP. After excluding for missing roadway data, missing genetic data, and length at residence of less than one year there were 5222 participants left of the original 6814. A diagram depicting the implementation of exclusion criteria appears as Figure 2.

Appropriate covariates to use for the primary effect of distance to roadway's association with CAC were divided into three categories: known coronary artery disease risk factors and other variables which were likely to influence both residential distance to roadway, CAC score and study site. Known coronary artery disease risk factors used to determine a Framingham risk score were used as Model 1: age, gender, total cholesterol, HDL, smoking status, race and use of hypertensive medications. Model 2 covariates include socioeconomic factors as well as other medical conditions associated with coronary artery disease. Annual income, body mass index (BMI), education level, self-reported intentional exercise, diabetes and use of lipid-lowering medications were added to the covariates from Model 1 to produce Model 2. Model 3 takes all of the covariates from Model 2 and adds study site as an additional covariate.

Before the analysis of possible effect modification was carried out it was necessary to determine if any model would produce significant results of an association between distance to roadway and CAC. To carry out this initial analysis three different measures of distance to roadway were combined with three different expressions of CAC. The exposure categories were all derived from prior studies that had found an association between distance to

roadway and some negative health outcome. The outcome measures were either recommended in the MESA protocol or were found to have an association with distance to roadway in a prior study (7).

The three exposure variables were 1) Distance to roadway less than or greater than 50m. 2) Distance to roadway less than or greater than 100m. 3) Distance to roadway less than 50m or greater than 150m. The three outcome variables were 1) Natural log of CAC plus one. 2) Zero CAC or Non-zero CAC. 3) CAC score greater than or less than 75^{th} percentile. Multiple linear regression was used for the natural log of CAC plus one and multiple logistic regression was used for the other two outcome variables.

The gene data used to perform the effect modification analysis were provided by the Candidate-gene Association REsource (CARe). White cells were collected and preserved at the first exam that MESA participants took part in. CARe is administered by the National Heart, Lung and Blood Institute (NHLBI) which participates in genetic aspects of several national studies. Eleven SNPs of OLR1 were available including at least one SNP on each of OLR1's six exons. The eleven SNPs were each coded as 0, 1 or 2 using 0 and 2 for the two homozygous states and 1 for the heterozygous state.

Performing multiple testing with genetic data frequently requires the use of less conservative means of accounting for the increased risk of type I errors with multiple testing. Use of the Bonferoni correction is too conservative to allow detection of the small influences numerous genes may have on a physiologic process such as atherosclerosis development. Methods referred to as False Discovery Rate (FDR) control are appropriate in instances involving tests using multiple variables that each may individually have a small effect (32). FDR methods produce a q-value that indicates the chance that the result would have occurred

by chance, similar to a p-value, but the q-value takes into account the number of tests and distribution of p-values. For this analysis a q-value of < 0.2 was used to determine significance.

Distance to roadway less versus greater than 100m and zero or non-zero CAC were selected as the primary exposure and outcome metrics. This choice was based on prior studies and simplicity of the outcome variable as opposed to others particularly natural log of CAC plus one. Logistic regression for main effect and effect modification by OLR1 SNPs was performed using STATA 11.2. Q-values were also determined using STATA.

Testing the other exposure and outcome combinations was handled more conservatively due to the increased risk for type I errors. To determine q-values for the eleven different SNPs being tested a total of 88 tests were done for each model: three exposures multiplied by three outcomes minus the already tested combination of exposure and outcome multiplied by eleven SNPs. FDR correction was done for two separate groups of 88 tests. This seems overly conservative, but if multiple SNPs have a small effect then FDR correction may still allow for significant results.

Analysis of linkage disequilibrium was performed using Haploview software. Linkage disequilibrium is the non-random association of alleles. Linkage disequilibrium is relevant in analyses of SNP effect because significant results may be due to association with a distant gene: the gene under study may not be the direct cause of a perceived association.

Additional Analyses

In addition to performing multiple linear regression and multiple logistic regression on the complete cohort, analyses were performed on each MESA site separately. The six sites were Baltimore, Chicago, Los Angeles, New York City, St. Paul and Winston-Salem. This additional stratified analysis was motivated by the idea that each location may have unique features that make distance to roadway more harmful, less harmful or not harmful at all. To account for the fact that this extra analysis has the potential to generate many type I errors; only Baltimore, the one site that had a highly significant association between roadway distance and CAC had analyses for effect modification done independent of the other sites.

Power calculations were done using Quanto, a statistical program used for gene-environment or gene-gene interaction. The environmental exposure prevalence used was 0.39: derived from the percent of people who lived within 100 meters of a major roadway. The allele frequencies were based on the highest and lowest allele frequencies for OLR1 SNPs. Different frequencies were used ranging from 0.004 to 0.23. Multiple coefficient numbers were used for predicted effect of environment, gene and interaction ranging from 0.04 to 1.2.

RESULTS

Table 1 provides demographic information for participants of the study broken down by site. A review of the table reveals interesting characteristics of the different sites. New York, for example, had the largest number of participants living within 50 meters and also within 100 meters of a major roadway and yet had the second lowest mean systolic blood pressure.

Tables 2 and 3 show unadjusted associations between exposures and outcomes classified by covariates. In Table 2 African-Americans had the lowest CAC scores contradicting perceptions about risk for coronary heart disease in the African-American community. It should be noted that this data do not provide clear evidence of association as they do not take into account possible confounders. A review of covariates such as smoking status suggested possible explanations for the lower CAC scores seen among African-Americans. Caucasians were nearly 23% more likely to have smoked in the past than African-Americans: 36.3% versus 44.4%.

Total cholesterol also had unusual contradictory results for CAC scores with the zero versus non-zero outcome seeming to suggest that lower total cholesterol was associated with a greater risk of having measurable coronary artery calcification. Age, sex, systolic blood pressure, HDL and annual income all demonstrated predictable patterns of increasing CAC scores with these known risk factors.

The distribution of the eleven OLR1 SNPs used for this analysis was determined both for the original cohort and the cohort after exclusion criteria were implemented. Changes in OLR1 SNP frequencies after exclusion criteria were calculated to determine if removal of

23% of the original cohort may have either altered frequencies or caused the loss of rare alleles. Information concerning OLR1 SNP breakdown by race and change in allele frequencies after exclusion are presented in Tables 4 and 5. Prevalence of SNPs is presented in Table 4 showing consistent differences between the four ethnic groups. One concern during the process of excluding anyone who hadn't lived at their address for more than one year is that any racial differences in this process could produce differences in allele frequencies. But a review of Table 5, which shows differences before and after implementing exclusion criteria, suggests there was little or no bias in how exclusion of participants occurred. The largest difference in allele frequency before and after was for rs3741860 with a decrease in the heterozygous state of 0.2%.

Primary Analysis

Main effect analysis for the entire MESA cohort was performed with three models shown in Tables 6, 7 and 8. In all three instances the results did not provide evidence of a relationship between distance to roadway and CAC. The lowest p-values for the three models were 0.249, 0.288 and 0.235 for Models 6, 7 and 8 respectively. The two models that did not use site as a covariate both had the lowest p-values using <50m as the exposure and natural log of CAC plus one as the outcome while the model that used study site had the lowest p-value using an exposure of <100m and 75^{th} percentile of CAC as the outcome. Some of the exposure and outcome combinations produced negative coefficients, which would indicate that living closer to a major roadway would actually lower your risk of having a higher CAC score. Using the <50m exposure seemed to produce this paradoxical result most often; eight

out of nine tests using the <50m exposure displayed this unexpected association of lower CAC score with decreased distance to roadway.

Interaction analysis by OLR1 SNPs was performed using the <100m exposure and zero versus non-zero CAC outcome. Results are shown in Table 9. There were no q-values less than 0.2 for any of the models. The FDR correction was done separately for all three models producing 0.319 and 0.418 as the two lowest q-values, both for the rs3741860 SNP.

Logistic and linear regression was carried out using the remaining combinations of exposure and outcome variables using all sites combined. These are presented in Table 10 and 11 for the two SNPs that had q-values <0.9. All other analyses of interaction by SNP produced q-values >0.9. For rs6488265 the model using exposure of 100 meters and CAC score greater than the 75^{th} percentile showed interaction with a p-value of 0.005. Batched together with 87 other tests this only produced a q-value of 0.264. The other SNP with an interesting, but not statistically significant, result was rs2742115. Its interaction was using the same exposure and outcome measures as rs6488265. It had a p-value of 0.006, but also failed to be significant with a q-value of 0.348.

Additional Analyses

Analysis of main exposure effects performed for each site individually showed that four of the sites had their lowest p-values ranging from 0.184 to 0.628. One of the sites, Winston-Salem, had a p-value of 0.004 for one of the associations, but the coefficients for all nine combinations of exposure / outcome were negative. The results suggest that living closer to a major roadway actually lowered the risk of having a higher CAC score. The analyses to

determine if there was an association between distance to roadway and CAC for five of six sites are presented in Section B of the Supplemental Material.

Baltimore was the only site that showed main effects in the hypothesized direction: having all positive coefficients. The linear regression analysis provided the statistically significant results for both Model 1 and Model 2 using distance less than 100 meters and natural log of CAC plus one in both cases. The p-values were both 0.001. These results are shown in Tables 12 and 13.

Every combination of exposure and outcome was used in the interaction analysis of the Baltimore site.. rs11053653 was the only SNP to have a q-value less than 0.20. The exposure for the significant result was less than 100 meters and outcome of natural log of CAC plus one. The p-value was 0.001 and q-value was 0.198. Table 14 shows the most significant results with the remaining results being presented in Section C of the Supplemental Materials.

Despite the results for the main effect analysis, interaction analysis was carried out on all of the sites individually. The results were collected together and presented in Section C of the Supplemental Materials. With only two exceptions all q-values were greater than 0.9. One of those exceptions was the rs11053653 SNP for the Baltimore site. The other exception was rs3741860 at the Winston-Salem site. Both results were found using an exposure of less than 100 meters and outcome of zero vs non-zero CAC. The q-values for both were 0.588 and therefore didn't fulfill the requirements for significance.

Power calculations for the interaction analyses ranged from 0.0551 to 0.595 using the frequencies of rs1050284 and rs12309394 that had very low frequencies of one of their homozygous states. Power to detect interaction with rs11053653 was 0.888.

It was noted that the linkage disequilibrium between the SNPs with the results closest to significance had a wide range of values. Linkage disequilibrium was very high between rs6488265 and rs2742115 ranging from 94% for Chinese-Americans to 99% for all other ethnic groups. Linkage disequilibrium was 96% to 99% between rs11053653 and rs2742115. Among the SNPs with some of the most consistently low p-values and q-values the lowest linkage disequilibrium was between rs11053653 and rs6488265 ranging from 5% for African-Americans to 97% for Chinese-Americans.

DISCUSSION

The *a priori* plan for analysis was to show effect modification by OLR1 SNPs in an association between distance to roadway and CAC score. The main effect had been demonstrated in one prior study, but unfortunately there was no model using the MESA cohort that was able to reproduce this main effect. One of the exposure / outcome combinations produced fairly low p-values, but nothing that could be considered significant: exposure less than 100 meters to roadway and outcome greater than 75th percentile CAC score had p-values of 0.235 and 0.279. An analysis for interaction was carried out using all combinations of exposure and outcome for both Model 1 and Model 2. When q-values were determined for interaction the two lowest q-values were for rs6488265 and rs2742115. These were found using the same exposure / outcome combinations that had the best results for finding a main effect. Overall the results for the initial analysis plan were disappointing. The results suggest that if the eleven SNPs have a modifying effect in the association between traffic exposure and CAC score that it is weak. Furthermore the results suggest that the proposed mechanism of Figure 1 is not consistent with the results seen here. Either air pollution exposure does not cause a significant increase in oxLDL or OLR1 polymorphisms play a negligible role in the pathway from increased oxLDL to atherosclerosis.

The results found by individually analyzing the different sites were interesting, but inconclusive. The one result which seemed to be significant was produced by using the Baltimore site data alone and determining q-values for this site independently. That approach produced a q-value for rs11053653 of 0.198. These results barely meet the requirement for significance. The validity of separately analyzing each site for interaction is questionable. To be valid there would have to be interaction between site, distance to roadway and OLR1

polymorphisms. This seems unlikely, but three-way interaction did show p-values of 0.001, 0.003, 0.004, 0.010, 0.017, 0.019, 0.026, 0.310, 0.352 and 0.778 for the Baltimore site.

Using SNPs as biomarkers in attempting to discern structural differences between one version of a gene product and another provides limited information about the role of genes in cardiovascular disease progression. Although the literature supports one instance of this occurring with the altered form of LOX-1: LOXIN, there are other factors influencing gene expression that may be more important. Epigenetic phenomena such as methylation of DNA can alter DNA expression for the individual and even their offspring. Relying too heavily on SNP data to explore genetic influences on complex physiological processes such as atherosclerosis development may explain the borderline results of this study. A broader analysis is needed.

One aspect of this study that could be the starting point for future studies is the results of the distance to roadway / CAC analyses. Some of the puzzling results, such as the decreased CAC scores with decreased distance to roadway seen using the Winston-Salem data need further exploration. A better understanding of the reasons for health effects seen with living closer to a major roadway requires analyses of aspects of infrastructure such as public transportation. Per capita income for individual cities could also modify the relationship of distance to roadway and health effects. The complicated association of distance to roadway to health effects needs further study.

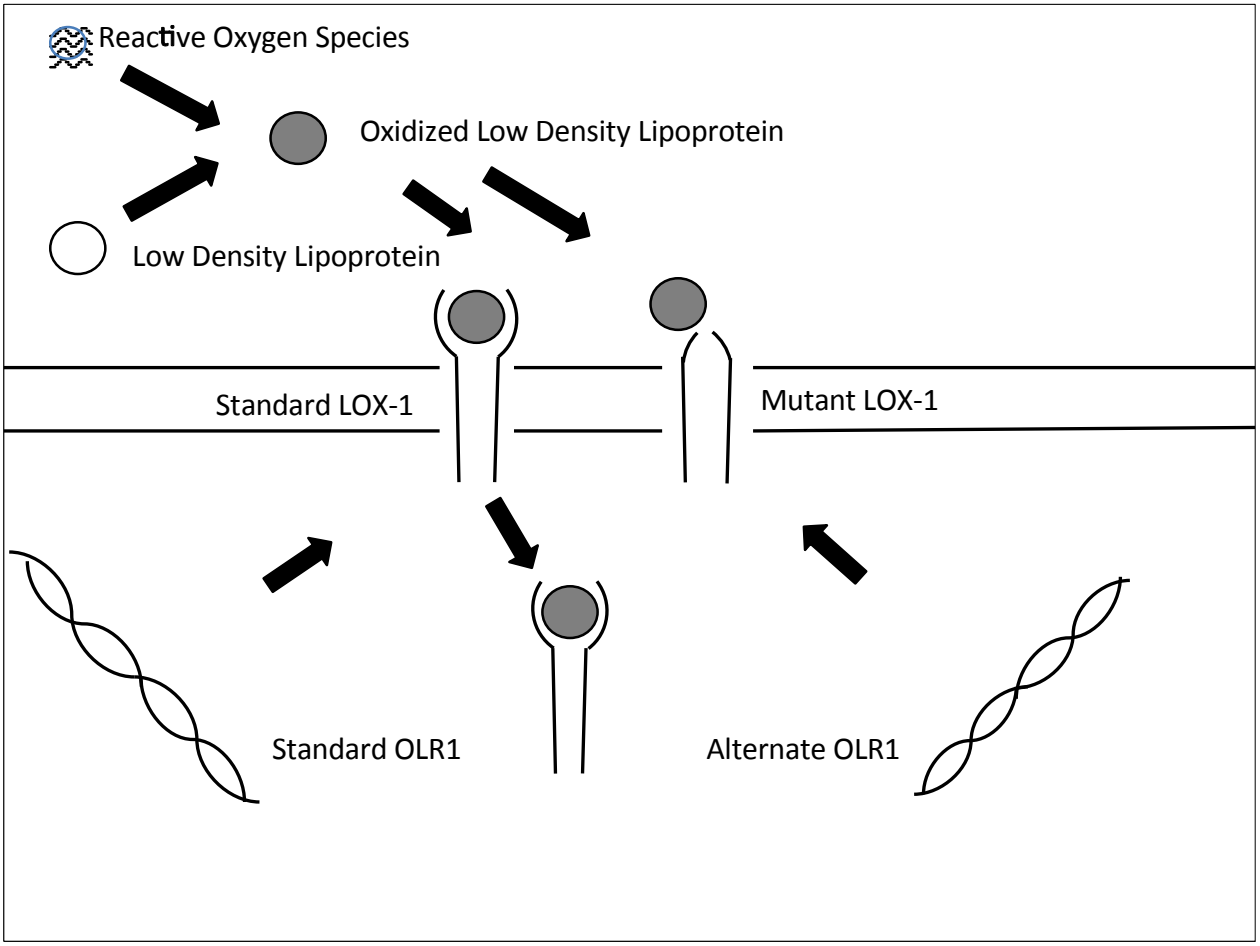

Figure 1: Proposed Model of Air Pollution / OLR1 SNP Polymorphism Interaction

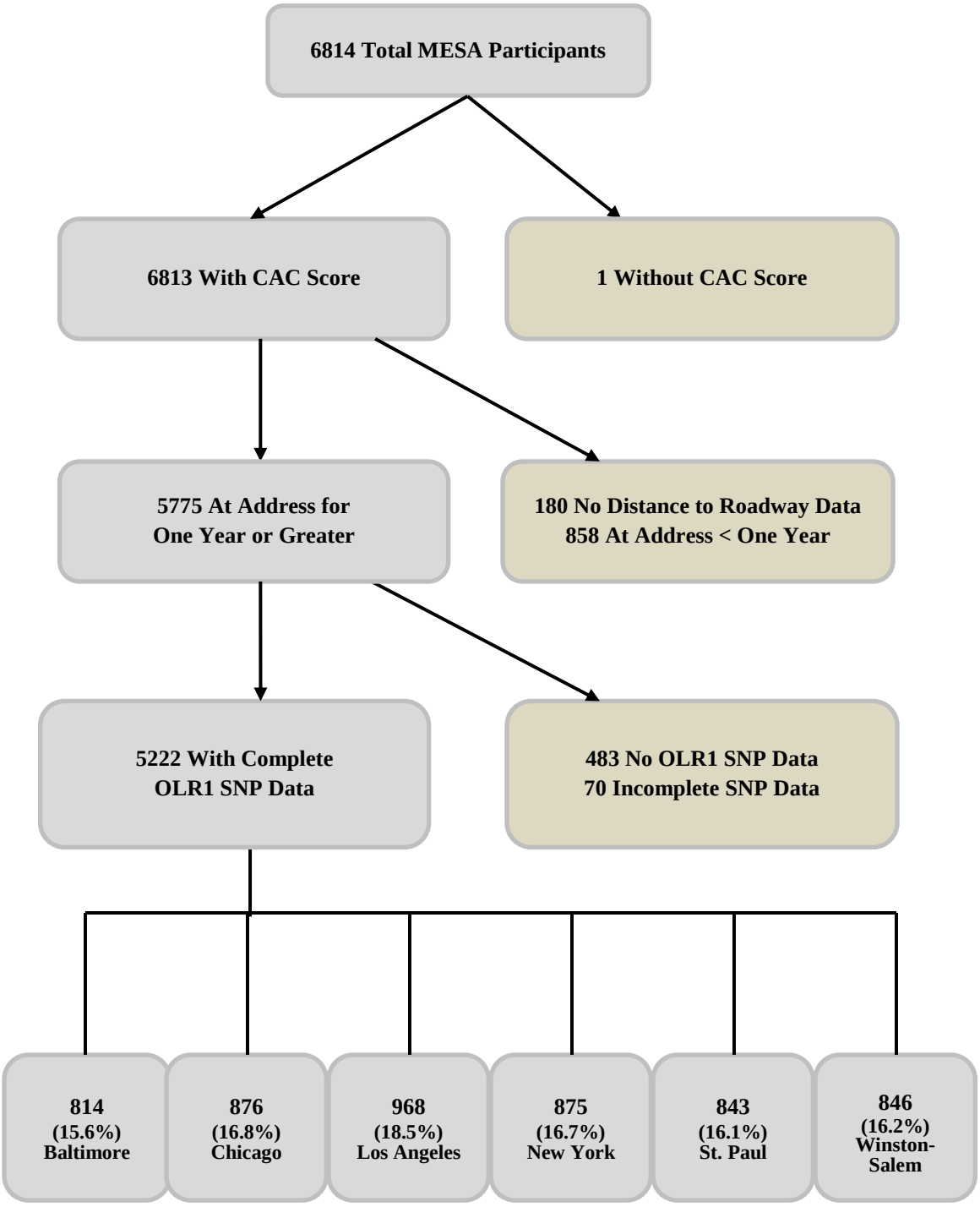

Figure 2: MESA Participants Not Used in Analyses Listed by Exclusionary Criteria

Table 1: Demographic Information by Site

Variable	Baltimore (n = 814)	Chicago (n = 876)	Los Angeles (n = 968)	New York (n = 875)	St. Paul (n = 843)	Winston-Salem (n = 846)	Total (n = 5222)
Age (y)	63.1 ± 9.9	62.5 ± 10.0	63.0 ± 10.3	61.7 ± 10.1	60.4 ± 10.3	62.2 ± 9.7	62.2 ± 10.1
Sex (%)							
Male	48	49	50	43	50	47	48
Female	52	51	50	57	50	53	52
Race (%)							
Caucasian	53	50	11	20	61	56	41
Chinese-American	0	27	35	<1	0	0	11
African-American	47	23	12	33	0	44	26
Hispanic	0	0	42	47	39	<1	22
BMI (kg/m^2)	29.3 ± 5.6	26.5 ± 4.8	27.2 ± 5.2	28.9 ± 5.5	29.5 ± 5.4	28.7 ± 5.2	28.3 ± 5.4
Systolic BP (mm Hg)	127.1 ± 20.6	122.9 ± 20.6	127.2 ± 21.9	124.4 ± 20.3	121.8 ± 20.2	132.8 ± 21.0	126.0 ± 21.1
LDL (mg/dL)	117.8 ± 32.1	116.5 ± 31.1	116.5 ± 31.0	118.3 ± 31.9	120.3 ± 31.3	114.1 ± 29.9	117.2 ± 31.3
Smoking Status (%)							
Never	47	52	62	50	43	45	50
Former	41	38	30	36	41	41	37
Current	12	10	8	14	16	13	12
Distance to Roadway (%)							
<50m	17	27	15	52	19	17	25
<100m	26	46	25	76	37	24	39
>150m	63	39	59	11	43	66	47
CAC							
>zero (%)	52	47	48	41	50	48	48
>75th perc. (%)	26	20	24	21	28	23	24
ln+1 (mean)	2.4 ± 2.6	2.1 ± 2.5	2.2 ± 2.5	1.8 ± 2.4	2.3 ± 2.6	2.2 ± 2.6	2.2 ± 2.5

Table 2: Frequency of Outcome Variable by Covariate

Variable	>zero (%) CAC	>75th percentile (%) CAC	CAC +1 (mean) Natural Log
Age (y)			
44-54	22.2	19.3	0.8 ± 1.6
55-64	42.1	25.4	1.8 ± 2.3
65-74	62.0	26.0	3.0 ± 2.6
75-84	79.1	24.9	4.0 ± 2.5
Sex			
Male	59.6	25.9	2.9 ± 2.7
Female	36.6	21.8	1.5 ± 2.2
Race			
Caucasian	53.5	23.3	2.5 ± 2.6
Chinese-American	47.4	24.6	2.1 ± 2.4
African-American	40.4	22.7	1.8 ± 2.4
Hispanic	45.0	25.6	2.0 ± 2.5
Systolic BP			
<120	38.1	20.5	1.7 ± 2.3
120-139	51.6	24.5	2.4 ± 2.6
140-160	57.9	26.7	2.7 ± 2.6
>160	63.8	34.7	3.2 ± 2.7
Smoking Status			
Never	41.4	19.9	1.8 ± 2.4
Former	56.0	27.2	2.6 ± 2.6
Current	47.7	29.7	2.1 ± 2.5
Total Cholesterol			
<150	48.0	23.3	2.3 ± 2.7
150-199	48.0	22.5	2.2 ± 2.5
200-239	47.2	24.7	2.1 ± 2.5
≥240	46.1	27.7	2.1 ± 2.5
HDL			
<40	56.8	30.4	2.7 ± 2.6
40-59	46.7	22.9	2.1 ± 2.5
≥60	41.1	19.8	1.8 ± 2.4
Annual Income			
<$20,000	54.9	26.4	2.5 ± 2.6
$20,000-50,000	47.9	24.5	2.2 ± 2.5
>%50,000	44.5	22.4	2.0 ± 2.5
Hypertension meds	58.6	30.3	2.8 ± 2.7
No hypertension meds	41.0	19.9	1.8±2.4
Lipid lowering meds	64.8	34.3	3.1 ± 2.6
No lipid lowering meds	44.5	21.9	2.0±2.5
Total	**47.6**	**23.8**	**2.2 ± 2.5**

Table 3: Frequency of Exposure Variable by Covariate

Variable	Distance <50m(%)	Distance 50-99m(%)	Distance 100m-149m(%)	Distance ≥150m(%)
Age (y)				
44-54	21.9	17.1	14.9	46.0
55-64	24.8	13.6	14.0	47.6
65-74	26.7	13.8	13.9	45.6
75-84	24.5	14.0	13.2	48.3
Sex				
Female	25.4	15.4	13.8	45.4
Male	24.1	13.2	14.3	48.3
Race				
Caucasian	23.4	14.1	13.1	49.4
Chinese-American	18.1	12.7	15.8	53.3
African-American	26.7	11.7	12.7	48.9
Hispanic	28.4	18.7	16.5	36.4
Systolic BP				
<120	25.8	15.3	14.4	44.5
120-139	23.5	13.8	14.1	48.5
140-160	25.8	13.3	13.4	47.5
>160	21.4	13.1	13.1	52.5
Smoking Status				
Never	23.2	14.4	14.2	48.2
Former	26.0	14.2	14.0	45.8
Current	27.8	14.6	13.7	43.9
Total Cholesterol				
<150	25.9	12.8	14.8	46.5
150-199	24.4	13.9	13.8	47.9
200-239	25.8	15.2	14.4	44.6
240 +	22.5	15.2	13.5	48.8
HDL				
<40	23.3	14.5	15.7	46.5
40-59	24.6	13.7	14.3	47.4
>60	26.6	15.6	12.0	45.7
Annual Income				
<20,000	28.3	14.9	16.3	40.5
20,000-50,000	24.8	15.0	15.3	44.9
>50,000	23.4	13.8	12.5	50.3
Hypertension meds	25.5	13.6	14.3	46.6
No hypertension meds	24.3	14.8	13.9	46.9
Lipid lowering meds	24.8	13.9	15.0	46.3
No lipid lowering meds	24.8	14.4	13.9	46.9
Total	**24.8**	**14.3**	**14.1**	**46.8**

Table 4: SNP Prevalence by Ethnic Group

		Caucasian		Chinese		Afr. Am.		Hispanic		All Races	
SNPs	Allele	#	%	#	%	#	%	#	%	#	%
rs1050289	CC	1917	79.41%	728	99.86%	1532	95.10%	1269	90.38%	5446	88.44%
	TC	479	19.84%	1	0.14%	78	4.84%	129	9.19%	687	11.16%
	TT	18	0.75%	0	0.00%	1	0.06%	6	0.43%	25	0.41%
rs12309394	CC	2381	98.63%	729	100.00%	1277	79.27%	1344	95.73%	5731	93.07%
	TC	32	1.33%	0	0.00%	308	19.12%	59	4.20%	399	6.48%
	TT	1	0.04%	0	0.00%	26	1.61%	1	0.07%	28	0.45%
rs3816844	AA	595	24.65%	39	5.35%	84	5.21%	333	23.72%	1051	17.07%
	AG	1183	49.01%	228	31.28%	555	34.45%	693	49.36%	2659	43.18%
	GG	636	26.35%	462	63.37%	972	60.34%	378	26.92%	2448	39.75%
rs3736232	CC	637	26.39%	462	63.37%	972	60.34%	378	26.92%	2449	39.77%
	CG	1182	48.96%	228	31.28%	555	34.45%	693	49.36%	2658	43.16%
	GG	595	24.65%	39	5.35%	84	5.21%	333	23.72%	1051	17.07%
rs6488265	AA	368	15.24%	462	63.37%	453	28.12%	239	17.02%	1522	24.72%
	AG	1094	45.32%	227	31.14%	816	50.65%	670	47.72%	2807	45.58%
	GG	952	39.44%	40	5.49%	342	21.23%	495	35.26%	1829	29.70%
rs11053653	AA	325	13.46%	291	39.92%	585	36.31%	267	19.02%	1468	23.84%
	AT	1118	46.31%	342	46.91%	751	46.62%	684	48.72%	2895	47.01%
	TT	971	40.22%	96	13.17%	275	17.07%	453	32.26%	1795	29.15%
rs3912640	CC	1857	76.93%	263	36.08%	1502	93.23%	914	65.10%	4536	73.66%
	TC	520	21.54%	360	49.38%	106	6.58%	421	29.99%	1407	22.85%
	TT	37	1.53%	106	14.54%	3	0.19%	69	4.91%	215	3.49%
rs3741860	AA	1335	55.30%	96	13.17%	493	30.60%	602	42.88%	2526	41.02%
	AG	895	37.08%	338	46.36%	808	50.16%	628	44.73%	2669	43.34%
	GG	184	7.62%	295	40.47%	310	19.24%	174	12.39%	963	15.64%
rs6488266	AA	9	0.37%	0	0.00%	482	29.92%	50	3.56%	541	8.79%
	AC	304	12.59%	2	0.27%	707	43.89%	242	17.24%	1255	20.38%
	CC	2101	87.03%	727	99.73%	422	26.19%	1112	79.20%	4362	70.83%
rs2742115	CC	173	7.17%	294	40.33%	24	1.49%	136	9.69%	627	10.18%
	TC	880	36.45%	340	46.64%	381	23.65%	548	39.03%	2149	34.90%
	TT	1361	56.38%	95	13.03%	1206	74.86%	720	51.28%	3382	54.92%
rs2742113	GG	1138	47.14%	117	16.05%	332	20.61%	531	37.82%	2118	34.39%
	TG	1014	42.00%	358	49.11%	836	51.89%	655	46.65%	2863	46.49%
	TT	262	10.85%	254	34.84%	443	27.50%	218	15.53%	1177	19.11%

Table 5: Allele Frequency Differences After Applying Exclusion Criteria

		Original Total		New Total		Difference	
SNPs	Allele	#	%	#	%	#	%
rs1050289	CC	5510	88.43%	5446	88.44%	64	0.01%
	TC	696	11.17%	687	11.16%	9	0.01%
	TT	25	0.40%	25	0.41%	0	0.01%
rs12309394	CC	5779	92.98%	5731	93.07%	48	0.09%
	TC	408	6.56%	399	6.48%	9	0.08%
	TT	28	0.45%	28	0.45%	0	0.00%
rs3816844	AA	1062	17.07%	1051	17.07%	11	0.00%
	AG	2688	43.21%	2659	43.18%	29	0.03%
	GG	2471	39.72%	2448	39.75%	23	0.03%
rs3736232	CC	2463	39.62%	2449	39.77%	14	0.15%
	CG	2693	43.32%	2658	43.16%	35	0.16%
	GG	1061	17.07%	1051	17.07%	10	0.00%
rs6488265	AA	1527	24.64%	1522	24.72%	5	0.08%
	AG	2829	45.64%	2807	45.58%	22	0.06%
	GG	1842	29.72%	1829	29.70%	13	0.02%
rs11053653	AA	1488	23.88%	1468	23.84%	20	0.04%
	AT	2933	47.06%	2895	47.01%	38	0.05%
	TT	1811	29.06%	1795	29.15%	16	0.09%
rs3912640	CC	4588	73.68%	4536	73.66%	52	0.02%
	TC	1423	22.85%	1407	22.85%	16	0.00%
	TT	216	3.47%	215	3.49%	1	0.02%
rs3741860	AA	2546	40.86%	2526	41.02%	20	0.16%
	AG	2713	43.54%	2669	43.34%	44	0.20%
	GG	972	15.60%	963	15.64%	9	0.04%
rs6488266	AA	555	8.93%	541	8.79%	14	0.14%
	AC	1266	20.36%	1255	20.38%	11	0.02%
	CC	4397	70.71%	4362	70.83%	35	0.12%
rs2742115	CC	630	10.11%	627	10.18%	3	0.07%
	TC	2174	34.89%	2149	34.90%	25	0.01%
	TT	3427	55.00%	3382	54.92%	45	0.08%
rs2742113	GG	2144	34.42%	2118	34.39%	26	0.03%
	TG	2898	46.52%	2863	46.49%	35	0.03%
	TT	1187	19.06%	1177	19.11%	10	0.05%

Table 6: All Sites, Distance to Roadway / CAC Association, Model 1

Analysis	Exposure	Outcome	Coef.	P-value
Linear	Distance <50m	ln CAC + 1	-0.079	0.249
Logistic	Distance <50m	CAC >75th %	-0.077	0.323
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.048	0.521
Linear	Distance <50m & >150m	ln CAC + 1	-0.039	0.595
Logistic	Distance <50m & >150m	CAC >75th %	-0.040	0.632
Logistic	Distance <100m	CAC >75th %	0.020	0.773
Linear	Distance <100m	ln CAC + 1	0.007	0.912
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	-0.006	0.936
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.001	0.990

Table 7: All Sites, Distance to Roadway / CAC Association, Model 2

Analysis	Exposure	Outcome	Coef.	P-value
Linear	Distance <50m	ln CAC + 1	-0.075	0.288
Logistic	Distance <50m	CAC >75th %	-0.062	0.452
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.058	0.462
Linear	Distance <50m & >150m	ln CAC + 1	-0.051	0.506
Logistic	Distance <50m & >150m	CAC >75th %	-0.039	0.665
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	-0.033	0.697
Logistic	Distance <100m	CAC >75th %	0.025	0.726
Linear	Distance <100m	ln CAC + 1	0.014	0.822
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.010	0.883

Table 8: All Sites, Distance to Roadway / CAC Association, Model 3

Analysis	Exposure	Outcome	Coef.	P-value
Logistic	Distance <100m	CAC >75th %	0.093	0.235
Linear	Distance <100m	ln CAC + 1	0.075	0.271
Logistic	Distance <100m	Zero/Non-Zero CAC	0.067	0.374
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.053	0.579
Logistic	Distance <50m & >150m	CAC >75th %	0.054	0.586
Linear	Distance <50m	ln CAC + 1	-0.032	0.668
Logistic	Distance <50m	CAC >75th %	-0.016	0.853
Linear	Distance <50m & >150m	ln CAC + 1	0.016	0.854
Logistic	Distance <50m	Zero/Non-Zero CAC	0.004	0.957

Table 9: All Sites, SNP Interaction, Exposure: <100m, Outcome: Zero vs. Non-Zero CAC

Model	SNP	Coefficient	P-Value	Q-Value
Model 2	rs3741860	0.216	0.029	0.319
Model 3	rs3741860	0.206	0.038	0.418
Model 2	rs2742115	-0.215	0.042	0.420
Model 1	rs3741860	0.192	0.042	0.450
Model 1	rs2742115	-0.201	0.045	0.450
Model 3	rs2742115	-0.195	0.066	0.657
Model 3	rs12309394	0.447	0.073	0.657
Model 1	rs6488266	0.186	0.077	0.693
Model 1	rs12309394	0.396	0.095	0.760
Model 2	rs12309394	0.426	0.086	0.774
Model 2	rs6488266	0.172	0.124	0.884
Model 2	rs2742113	0.114	0.241	0.884
Model 2	rs11053653	-0.088	0.359	0.884
Model 2	rs1050289	-0.171	0.398	0.884
Model 2	rs3912640	0.103	0.45	0.884
Model 2	rs6488265	-0.018	0.852	0.884
Model 2	rs3736232	0.014	0.881	0.884
Model 2	rs3816844	-0.014	0.884	0.884
Model 3	rs6488266	0.15	0.184	0.94
Model 3	rs2742113	0.112	0.253	0.94
Model 3	rs11053653	-0.086	0.374	0.94
Model 3	rs1050289	-0.178	0.381	0.94
Model 3	rs3912640	0.079	0.567	0.94
Model 3	rs3736232	0.021	0.824	0.94
Model 3	rs3816844	-0.021	0.827	0.94
Model 3	rs6488265	-0.007	0.94	0.94
Model 1	rs2742113	0.101	0.272	0.947
Model 1	rs11053653	-0.097	0.287	0.947
Model 1	rs3912640	0.078	0.549	0.947
Model 1	rs1050289	-0.076	0.689	0.947
Model 1	rs3736232	0.013	0.885	0.947
Model 1	rs3816844	-0.013	0.888	0.947
Model 1	rs6488265	0.006	0.947	0.947

Table 10: All Sites, Interaction by rs6488265

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 2	<100m	CAC >75th %	-0.286	0.003	0.264
Model 3	<100m	CAC >75th %	-0.277	0.005	0.440
Model 3	<100m	ln CAC + 1	-0.13	0.125	0.928
Model 3	<50m & >150m	CAC >75th %	-0.152	0.204	0.928
Model 3	<50m	CAC >75th %	-0.125	0.258	0.928
Model 3	<50m & >150m	ln CAC + 1	-0.084	0.414	0.928
Model 3	<50m & >150m	zero/non-zero	0.085	0.46	0.928
Model 3	<50m	zero/non-zero	0.071	0.504	0.928
Model 3	<50m	ln CAC + 1	-0.043	0.655	0.928
Model 3	<100m	zero/non-zero	-0.007	0.94	0.928
Model 2	<100m	ln CAC + 1	-0.14	0.1	0.976
Model 2	<50m & >150m	CAC >75th %	-0.159	0.182	0.976
Model 2	<50m	CAC >75th %	-0.129	0.243	0.976
Model 2	<50m & >150m	ln CAC + 1	-0.095	0.356	0.976
Model 2	<50m & >150m	zero/non-zero	0.071	0.535	0.976
Model 2	<50m	zero/non-zero	0.065	0.544	0.976
Model 2	<50m	ln CAC + 1	-0.049	0.609	0.976
Model 2	<100m	zero/non-zero	-0.018	0.852	0.976
Model 1	<100m	CAC >75th %	-0.212	0.022	0.989
Model 1	<100m	ln CAC + 1	-0.095	0.25	0.989
Model 1	<50m & >150m	CAC >75th %	-0.103	0.366	0.989
Model 1	<50m	CAC >75th %	-0.093	0.375	0.989
Model 1	<50m & >150m	zero/non-zero	0.808	0.46	0.989
Model 1	<50m	zero/non-zero	0.063	0.53	0.989
Model 1	<50m & >150m	ln CAC + 1	-0.052	0.603	0.989
Model 1	<50m	ln CAC + 1	-0.025	0.784	0.989
Model 1	<100m	zero/non-zero	0.006	0.947	0.989

Table 11: All Sites, Interaction by rs2742115, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 2	<100m	CAC >75th %	-0.312	0.004	0.348
Model 3	<100m	CAC >75th %	-0.298	0.006	0.522
Model 1	<100m	CAC >75th %	-0.272	0.008	0.704
Model 3	<100m	ln CAC + 1	-0.2	0.035	0.928
Model 3	<50m & >150m	CAC >75th %	-0.244	0.069	0.928
Model 3	<50m & >150m	ln CAC + 1	-0.171	0.142	0.928
Model 3	<50m	CAC >75th %	-0.159	0.197	0.928
Model 3	<50m & >150m	zero/non-zero	-0.127	0.331	0.928
Model 3	<50m	ln CAC + 1	-0.07	0.519	0.928
Model 3	<50m	zero/non-zero	-0.056	0.643	0.928
Model 2	<100m	ln CAC + 1	-0.217	0.022	0.976
Model 2	<50m & >150m	CAC >75th %	-0.261	0.05	0.976
Model 2	<50m & >150m	ln CAC + 1	-0.189	0.103	0.976
Model 2	<50m	CAC >75th %	-0.169	0.169	0.976
Model 2	<50m & >150m	zero/non-zero	-0.154	0.236	0.976
Model 2	<50m	ln CAC + 1	-0.082	0.448	0.976
Model 2	<50m	zero/non-zero	-0.076	0.531	0.976
Model 1	<100m	ln CAC + 1	-0.183	0.045	0.989
Model 1	<50m & >150m	CAC >75th %	-0.219	0.084	0.989
Model 1	<50m & >150m	ln CAC + 1	-0.162	0.149	0.989
Model 1	<50m & >150m	zero/non-zero	-0.157	0.201	0.989
Model 1	<50m	CAC >75th %	-0.146	0.215	0.989
Model 1	<50m	zero/non-zero	-0.101	0.376	0.989
Model 1	<50m	ln CAC + 1	-0.084	0.426	0.989

Table 12: Baltimore, Distance to Roadway / CAC Association, Model 1

Analysis	Exposure	Outcome	Coef.	P-value
Linear	Distance <100m	ln CAC + 1	0.578	0.001
Logistic	Distance <100m	CAC >75th %	0.532	0.003
Linear	Distance <50m & >150m	ln CAC + 1	0.611	0.003
Linear	Distance <50m	ln CAC + 1	0.465	0.022
Logistic	Distance <50m & >150m	CAC >75th %	0.470	0.032
Logistic	Distance <100m	Zero/Non-Zero CAC	0.373	0.052
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.376	0.101
Logistic	Distance <50m	CAC >75th %	0.323	0.125
Logistic	Distance <50m	Zero/Non-Zero CAC	0.254	0.254

Table 13: Baltimore, Distance to Roadway / CAC Association, Model 2

Analysis	Exposure	Outcome	Coef.	P-value
Linear	Distance <100m	ln CAC + 1	0.639	0.001
Linear	Distance <50m & >150m	ln CAC + 1	0.676	0.002
Logistic	Distance <100m	CAC >75th %	0.586	0.004
Linear	Distance <50m	ln CAC + 1	0.524	0.016
Logistic	Distance <50m & >150m	CAC >75th %	0.553	0.022
Logistic	Distance <50m	CAC >75th %	0.401	0.084
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.401	0.112
Logistic	Distance <100m	Zero/Non-Zero CAC	0.329	0.119
Logistic	Distance <50m	Zero/Non-Zero CAC	0.282	0.248

Table 14: Baltimore, Interaction Analysis, Arranged by Q-Value

SNP	Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
rs11053653	Model 2	<100m	ln CAC + 1	-0.862	0.001	0.198
rs11053653	Model 2	<100m	CAC >75th %	-0.874	0.003	0.591
rs2742115	Model 2	<50m & >150m	CAC >75th %	-1.18	0.004	0.784
rs11053653	Model 2	<100m	zero/non-zero	-0.87	0.005	0.970
rs2742115	Model 2	<50m	CAC >75th %	-1.112	0.005	0.970
rs2742115	Model 1	<50m & >150m	CAC >75th %	-1.075	0.006	0.991

P-values for all remaining interactions are shown in Section C of the supplemental materials.

All SNP interaction analyses for Baltimore not shown here had q-values ≥0.991.

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SUPPLEMENTAL MATERIALS

Section A: Combined Site Interaction Analyses: Q-Values >0.9

All Sites, Interaction by rs1050289, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<100m	ln CAC + 1	-0.217	0.235	0.928
Model 3	<100m	CAC >75th %	-0.251	0.236	0.928
Model 3	<50m & >150m	ln CAC + 1	-0.191	0.389	0.928
Model 3	<50m	ln CAC + 1	-0.148	0.469	0.928
Model 3	<50m & >150m	CAC >75th %	-0.105	0.688	0.928
Model 3	<50m & >150m	zero/non-zero	-0.095	0.697	0.928
Model 3	<50m	CAC >75th %	-0.092	0.701	0.928
Model 3	<50m	zero/non-zero	-0.084	0.713	0.928
Model 2	<100m	CAC >75th %	-0.249	0.239	0.976
Model 2	<100m	ln CAC + 1	-0.209	0.25	0.976
Model 2	<50m & >150m	ln CAC + 1	-0.184	0.407	0.976
Model 2	<50m	ln CAC + 1	-0.15	0.462	0.976
Model 2	<50m	CAC >75th %	-0.095	0.69	0.976
Model 2	<50m	zero/non-zero	-0.09	0.694	0.976
Model 2	<50m & >150m	zero/non-zero	-0.096	0.697	0.976
Model 2	<50m & >150m	CAC >75th %	-0.099	0.703	0.976
Model 1	<100m	CAC >75th %	-0.143	0.468	0.989
Model 1	<100m	ln CAC + 1	-0.113	0.52	0.989
Model 1	<50m	ln CAC + 1	-0.047	0.809	0.989
Model 1	<50m & >150m	ln CAC + 1	-0.045	0.831	0.989
Model 1	<50m	CAC >75th %	-0.047	0.832	0.989
Model 1	<50m & >150m	zero/non-zero	0.033	0.887	0.989
Model 1	<50m	zero/non-zero	0.006	0.977	0.989
Model 1	<50m & >150m	CAC >75th %	0.004	0.985	0.989

All Sites, Interaction by rs12309394, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<100m	ln CAC + 1	0.406	0.07	0.928
Model 3	<50m	ln CAC + 1	0.427	0.076	0.928
Model 3	<50m	zero/non-zero	0.402	0.133	0.928
Model 3	<50m & >150m	ln CAC + 1	0.357	0.168	0.928
Model 3	<50m & >150m	zero/non-zero	0.32	0.267	0.928
Model 3	<100m	CAC >75th %	0.096	0.715	0.928
Model 3	<50m & >150m	CAC >75th %	-0.057	0.851	0.928
Model 3	<50m	CAC >75th %	0.051	0.859	0.928
Model 2	<50m	ln CAC + 1	0.427	0.075	0.976
Model 2	<100m	ln CAC + 1	0.388	0.083	0.976
Model 2	<50m	zero/non-zero	0.403	0.131	0.976
Model 2	<50m & >150m	ln CAC + 1	0.354	0.171	0.976
Model 2	<50m & >150m	zero/non-zero	0.316	0.272	0.976
Model 2	<100m	CAC >75th %	0.073	0.781	0.976
Model 2	<50m & >150m	CAC >75th %	-0.065	0.83	0.976
Model 2	<50m	CAC >75th %	0.049	0.862	0.976
Model 1	<100m	ln CAC + 1	0.337	0.121	0.989
Model 1	<50m	ln CAC + 1	0.318	0.174	0.989
Model 1	<50m	zero/non-zero	0.339	0.184	0.989
Model 1	<50m & >150m	ln CAC + 1	0.228	0.365	0.989
Model 1	<50m & >150m	zero/non-zero	0.232	0.396	0.989
Model 1	<50m & >150m	CAC >75th %	-0.228	0.435	0.989
Model 1	<50m	CAC >75th %	-0.08	0.77	0.989
Model 1	<100m	CAC >75th %	0.003	0.989	0.989

All Sites, Interaction by rs3736232, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<100m	CAC >75th %	-0.214	0.031	0.928
Model 3	<100m	ln CAC + 1	-0.115	0.182	0.928
Model 3	<50m & >150m	zero/non-zero	0.153	0.189	0.928
Model 3	<50m	CAC >75th %	-0.098	0.379	0.928
Model 3	<50m & >150m	CAC >75th %	-0.103	0.397	0.928
Model 3	<50m	zero/non-zero	0.087	0.417	0.928
Model 3	<50m	ln CAC + 1	-0.037	0.703	0.928
Model 3	<50m & >150m	ln CAC + 1	-0.037	0.72	0.928
Model 2	<100m	CAC >75th %	-0.218	0.027	0.976
Model 2	<100m	ln CAC + 1	-0.121	0.161	0.976
Model 2	<50m & >150m	zero/non-zero	0.143	0.217	0.976
Model 2	<50m	CAC >75th %	-0.101	0.364	0.976
Model 2	<50m & >150m	CAC >75th %	-0.108	0.371	0.976
Model 2	<50m	zero/non-zero	0.083	0.439	0.976
Model 2	<50m & >150m	ln CAC + 1	-0.046	0.655	0.976
Model 2	<50m	ln CAC + 1	-0.041	0.668	0.976
Model 1	<100m	CAC >75th %	-0.164	0.081	0.989
Model 1	<100m	ln CAC + 1	-0.096	0.251	0.989
Model 1	<50m & >150m	zero/non-zero	0.124	0.259	0.989
Model 1	<50m	zero/non-zero	0.062	0.541	0.989
Model 1	<50m	CAC >75th %	-0.058	0.585	0.989
Model 1	<50m & >150m	CAC >75th %	-0.048	0.676	0.989
Model 1	<50m	ln CAC + 1	-0.029	0.759	0.989
Model 1	<50m & >150m	ln CAC + 1	-0.022	0.826	0.989

All Sites, Interaction by rs3816844, Arranged by Q-Value

Model 3	<100m	CAC >75th %	0.213	0.032	0.928
Model 3	<100m	ln CAC + 1	0.116	0.179	0.928
Model 3	<50m & >150m	zero/non-zero	-0.152	0.191	0.928
Model 3	<50m	CAC >75th %	0.097	0.384	0.928
Model 3	<50m & >150m	CAC >75th %	0.101	0.404	0.928
Model 3	<50m	zero/non-zero	-0.087	0.419	0.928
Model 3	<50m	ln CAC + 1	0.037	0.699	0.928
Model 3	<50m & >150m	ln CAC + 1	0.038	0.713	0.928
Model 2	<100m	CAC >75th %	0.217	0.028	0.976
Model 2	<100m	ln CAC + 1	0.121	0.159	0.976
Model 2	<50m & >150m	zero/non-zero	-0.143	0.218	0.976
Model 2	<50m	CAC >75th %	0.1	0.369	0.976
Model 2	<50m & >150m	CAC >75th %	0.106	0.379	0.976
Model 2	<50m	zero/non-zero	-0.083	0.441	0.976
Model 2	<50m & >150m	ln CAC + 1	0.047	0.649	0.976
Model 2	<50m	ln CAC + 1	0.042	0.664	0.976
Model 1	<100m	CAC >75th %	0.163	0.083	0.989
Model 1	<100m	ln CAC + 1	0.097	0.248	0.989
Model 1	<50m & >150m	zero/non-zero	-0.123	0.261	0.989
Model 1	<50m	zero/non-zero	-0.062	0.543	0.989
Model 1	<50m	CAC >75th %	0.057	0.59	0.989
Model 1	<50m & >150m	CAC >75th %	0.047	0.683	0.989
Model 1	<50m	ln CAC + 1	0.029	0.755	0.989
Model 1	<50m & >150m	ln CAC + 1	0.023	0.819	0.989

All Sites, Interaction by rs3741860, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<100m	CAC >75th %	0.251	0.014	0.928
Model 3	<100m	ln CAC + 1	0.193	0.029	0.928
Model 3	<50m & >150m	ln CAC + 1	0.165	0.125	0.928
Model 3	<50m & >150m	CAC >75th %	0.172	0.169	0.928
Model 3	<50m	CAC >75th %	0.13	0.259	0.928
Model 3	<50m	ln CAC + 1	0.106	0.287	0.928
Model 3	<50m & >150m	zero/non-zero	0.123	0.306	0.928
Model 3	<50m	zero/non-zero	0.1	0.371	0.928
Model 2	<100m	CAC >75th %	0.257	0.011	0.976
Model 2	<100m	ln CAC + 1	0.201	0.023	0.976
Model 2	<50m & >150m	ln CAC + 1	0.176	0.101	0.976
Model 2	<50m & >150m	CAC >75th %	0.18	0.148	0.976
Model 2	<50m	CAC >75th %	0.136	0.236	0.976
Model 2	<50m & >150m	zero/non-zero	0.139	0.244	0.976
Model 2	<50m	ln CAC + 1	0.114	0.254	0.976
Model 2	<50m	zero/non-zero	0.11	0.321	0.976
Model 1	<100m	CAC >75th %	0.191	0.048	0.989
Model 1	<100m	ln CAC + 1	0.16	0.063	0.989
Model 1	<50m & >150m	ln CAC + 1	0.119	0.254	0.989
Model 1	<50m	zero/non-zero	0.116	0.274	0.989
Model 1	<50m & >150m	zero/non-zero	0.119	0.296	0.989
Model 1	<50m	ln CAC + 1	0.09	0.354	0.989
Model 1	<50m & >150m	CAC >75th %	0.09	0.448	0.989
Model 1	<50m	CAC >75th %	0.077	0.485	0.989

All Sites, Interaction by rs3912640, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<50m & >150m	ln CAC + 1	0.234	0.127	0.928
Model 3	<50m	CAC >75th %	0.239	0.138	0.928
Model 3	<50m & >150m	CAC >75th %	0.256	0.143	0.928
Model 3	<100m	CAC >75th %	0.178	0.202	0.928
Model 3	<50m	ln CAC + 1	0.182	0.205	0.928
Model 3	<100m	ln CAC + 1	0.085	0.49	0.928
Model 3	<50m & >150m	zero/non-zero	0.119	0.491	0.928
Model 3	<50m	zero/non-zero	0.11	0.492	0.928
Model 2	<50m & >150m	ln CAC + 1	0.26	0.089	0.976
Model 2	<50m & >150m	CAC >75th %	0.28	0.107	0.976
Model 2	<50m	CAC >75th %	0.25	0.12	0.976
Model 2	<100m	CAC >75th %	0.198	0.153	0.976
Model 2	<50m	ln CAC + 1	0.196	0.172	0.976
Model 2	<50m & >150m	zero/non-zero	0.154	0.369	0.976
Model 2	<100m	ln CAC + 1	0.106	0.387	0.976
Model 2	<50m	zero/non-zero	0.131	0.415	0.976
Model 1	<50m & >150m	ln CAC + 1	0.219	0.141	0.989
Model 1	<50m & >150m	CAC >75th %	0.221	0.182	0.989
Model 1	<50m	CAC >75th %	0.192	0.214	0.989
Model 1	<50m	ln CAC + 1	0.166	0.235	0.989
Model 1	<100m	CAC >75th %	0.141	0.287	0.989
Model 1	<50m & >150m	zero/non-zero	0.143	0.38	0.989
Model 1	<50m	zero/non-zero	0.13	0.396	0.989
Model 1	<100m	ln CAC + 1	0.073	0.542	0.989

All Sites, Interaction by rs11053653, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<100m	CAC >75th %	-0.205	0.039	0.928
Model 3	<100m	ln CAC + 1	-0.177	0.04	0.928
Model 3	<50m & >150m	zero/non-zero	0.105	0.365	0.928
Model 3	<50m	zero/non-zero	0.059	0.589	0.928
Model 3	<50m & >150m	CAC >75th %	-0.06	0.623	0.928
Model 3	<50m & >150m	ln CAC + 1	-0.046	0.659	0.928
Model 3	<50m	CAC >75th %	-0.047	0.678	0.928
Model 3	<50m	ln CAC + 1	-0.014	0.881	0.928
Model 2	<100m	CAC >75th %	-0.207	0.037	0.976
Model 2	<100m	ln CAC + 1	-0.18	0.037	0.976
Model 2	<50m & >150m	zero/non-zero	0.098	0.403	0.976
Model 2	<50m & >150m	CAC >75th %	-0.067	0.579	0.976
Model 2	<50m & >150m	ln CAC + 1	-0.053	0.61	0.976
Model 2	<50m	zero/non-zero	0.055	0.614	0.976
Model 2	<50m	CAC >75th %	-0.05	0.655	0.976
Model 2	<50m	ln CAC + 1	-0.018	0.855	0.976
Model 1	<100m	ln CAC + 1	-0.161	0.054	0.989
Model 1	<100m	CAC >75th %	-0.156	0.096	0.989
Model 1	<50m & >150m	zero/non-zero	0.063	0.565	0.989
Model 1	<50m & >150m	ln CAC + 1	-0.038	0.708	0.989
Model 1	<50m	zero/non-zero	0.021	0.837	0.989
Model 1	<50m	ln CAC + 1	-0.013	0.888	0.989
Model 1	<50m & >150m	CAC >75th %	-0.011	0.927	0.989
Model 1	<50m	CAC >75th %	-0.007	0.946	0.989

All Sites, Interaction by rs2742113, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<100m	CAC >75th %	0.257	0.011	0.928
Model 3	<100m	ln CAC + 1	0.179	0.041	0.928
Model 3	<50m & >150m	CAC >75th %	0.167	0.174	0.928
Model 3	<50m	CAC >75th %	0.138	0.224	0.928
Model 3	<50m & >150m	ln CAC + 1	0.107	0.309	0.928
Model 3	<50m	ln CAC + 1	0.078	0.425	0.928
Model 3	<50m	zero/non-zero	0.018	0.871	0.928
Model 3	<50m & >150m	zero/non-zero	-0.013	0.91	0.928
Model 2	<100m	CAC >75th %	0.258	0.01	0.967
Model 2	<100m	ln CAC + 1	0.18	0.039	0.976
Model 2	<50m & >150m	CAC >75th %	0.172	0.16	0.976
Model 2	<50m	CAC >75th %	0.142	0.208	0.976
Model 2	<50m & >150m	ln CAC + 1	0.113	0.281	0.976
Model 2	<50m	ln CAC + 1	0.083	0.394	0.976
Model 2	<50m	zero/non-zero	0.025	0.816	0.976
Model 2	<50m & >150m	zero/non-zero	-0.003	0.976	0.976
Model 1	<100m	CAC >75th %	0.204	0.033	0.989
Model 1	<100m	ln CAC + 1	0.157	0.064	0.989
Model 1	<50m	CAC >75th %	0.118	0.274	0.989
Model 1	<50m & >150m	CAC >75th %	0.118	0.312	0.989
Model 1	<50m & >150m	ln CAC + 1	0.092	0.364	0.989
Model 1	<50m	ln CAC + 1	0.085	0.369	0.989
Model 1	<50m	zero/non-zero	0.045	0.663	0.989
Model 1	<50m & >150m	zero/non-zero	0.003	0.978	0.989

All Sites, Interaction by rs6488266, Arranged by Q-Value

Model	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 3	<50m & >150m	zero/non-zero	0.253	0.062	0.928
Model 3	<50m	zero/non-zero	0.117	0.35	0.928
Model 3	<50m & >150m	ln CAC + 1	0.104	0.385	0.928
Model 3	<50m & >150m	CAC >75th %	0.058	0.681	0.928
Model 3	<100m	ln CAC + 1	0.031	0.756	0.928
Model 3	<100m	CAC >75th %	0.032	0.784	0.928
Model 3	<50m	ln CAC + 1	0.029	0.795	0.928
Model 3	<50m	CAC >75th %	-0.012	0.928	0.928
Model 2	<50m & >150m	zero/non-zero	0.27	0.044	0.976
Model 2	<50m	zero/non-zero	0.131	0.294	0.976
Model 2	<50m & >150m	ln CAC + 1	0.116	0.333	0.976
Model 2	<100m	ln CAC + 1	0.051	0.607	0.976
Model 2	<50m & >150m	CAC >75th %	0.071	0.61	0.976
Model 2	<100m	CAC >75th %	0.051	0.662	0.976
Model 2	<50m	ln CAC + 1	0.036	0.743	0.976
Model 2	<50m	CAC >75th %	-0.005	0.967	0.976
Model 1	<50m & >150m	zero/non-zero	0.287	0.022	0.989
Model 1	<50m	zero/non-zero	0.159	0.175	0.989
Model 1	<50m & >150m	ln CAC + 1	0.145	0.202	0.989
Model 1	<50m & >150m	CAC >75th %	0.126	0.333	0.989
Model 1	<100m	CAC >75th %	0.092	0.397	0.989
Model 1	<100m	ln CAC + 1	0.069	0.463	0.989
Model 1	<50m	ln CAC + 1	0.067	0.522	0.989
Model 1	<50m	CAC >75th %	0.038	0.755	0.989

Section B: Individual Site Roadway Distance / CAC Association Analyses with P-Values >0.05

New York, Distance to Roadway / CAC Association, Model 1

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <100m	Zero/Non-Zero CAC	0.248	0.202
Logistic	Distance <50m	CAC >75th %	-0.146	0.393
Logistic	Distance <50m	Zero/Non-Zero CAC	0.113	0.485
Logistic	Distance <50m & >150m	CAC >75th %	-0.194	0.493
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.160	0.561
Logistic	Distance <100m	CAC >75th %	-0.104	0.603
Linear	Distance <50m & >150m	ln CAC + 1	-0.062	0.795
Linear	Distance <100m	ln CAC + 1	0.011	0.949
Linear	Distance <50m	ln CAC + 1	-0.002	0.990

New York, Distance to Roadway / CAC Association, Model 2

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <100m	Zero/Non-Zero CAC	0.232	0.250
Logistic	Distance <50m	CAC >75th %	-0.156	0.383
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.179	0.533
Logistic	Distance <100m	CAC >75th %	-0.122	0.559
Logistic	Distance <50m	Zero/Non-Zero CAC	0.090	0.593
Logistic	Distance <50m & >150m	CAC >75th %	-0.137	0.650
Linear	Distance <50m	ln CAC + 1	-0.021	0.884
Linear	Distance <50m & >150m	ln CAC + 1	-0.025	0.919
Linear	Distance <100m	ln CAC + 1	0.002	0.990

Chicago, Distance to Roadway / CAC Association, Model 1

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <100m	CAC >75th %	0.209	0.242
Linear	Distance <100m	ln CAC + 1	0.107	0.454
Linear	Distance <50m	ln CAC + 1	-0.103	0.518
Logistic	Distance <100m	Zero/Non-Zero CAC	0.101	0.539
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.124	0.542
Logistic	Distance <50m & >150m	CAC >75th %	0.093	0.688
Linear	Distance <50m & >150m	ln CAC + 1	0.060	0.739
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.025	0.890
Logistic	Distance <50m	CAC >75th %	-0.022	0.911

Chicago, Distance to Roadway / CAC Association, Model 2

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <100m	CAC >75th %	0.252	0.184
Linear	Distance <100m	ln CAC + 1	0.121	0.419
Logistic	Distance <50m & >150m	CAC >75th %	0.197	0.428
Linear	Distance <50m	ln CAC + 1	-0.113	0.498
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.118	0.546
Logistic	Distance <100m	Zero/Non-Zero CAC	0.080	0.651
Linear	Distance <50m & >150m	ln CAC + 1	0.047	0.805
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.029	0.896
Logistic	Distance <50m	CAC >75th %	0.015	0.942

Los Angeles, Distance to Roadway / CAC Association, Model 1

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.105	0.615
Linear	Distance <50m	ln CAC + 1	-0.089	0.644
Logistic	Distance <50m & >150m	CAC >75th %	0.058	0.796
Linear	Distance <50m & >150m	ln CAC + 1	-0.033	0.868
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	-0.024	0.912
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.017	0.920
Logistic	Distance <50m	CAC >75th %	0.018	0.934
Logistic	Distance <100m	CAC >75th %	-0.012	0.946
Linear	Distance <100m	ln CAC + 1	0.005	0.974

Los Angeles, Distance to Roadway / CAC Association, Model 2

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.104	0.628
Logistic	Distance <100m	CAC >75th %	-0.058	0.750
Linear	Distance <50m	ln CAC + 1	-0.060	0.758
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	-0.021	0.927
Logistic	Distance <50m & >150m	CAC >75th %	0.019	0.935
Logistic	Distance <50m	CAC >75th %	-0.013	0.952
Linear	Distance <50m & >150m	ln CAC + 1	-0.012	0.954
Linear	Distance <100m	ln CAC + 1	0.008	0.961
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.001	0.997

St. Paul, Distance to Roadway / CAC Association, Model 1

Analysis Performed	Exposure	Outcome	Coef.	P-Value
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.325	0.151
Logistic	Distance <50m	Zero/Non-Zero CAC	0.293	0.155
Linear	Distance <50m	ln CAC + 1	0.148	0.435
Linear	Distance <50m & >150m	ln CAC + 1	0.131	0.522
Linear	Distance <100m	ln CAC + 1	-0.094	0.542
Logistic	Distance <50m & >150m	CAC >75th %	0.101	0.640
Logistic	Distance <100m	CAC >75th %	-0.051	0.756
Logistic	Distance <50m	CAC >75th %	0.008	0.966
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.006	0.973

St. Paul, Distance to Roadway / CAC Association, Model 2

Analysis Performed	Exposure	Outcome	Coef.	P-value
Logistic	Distance <50m	Zero/Non-Zero CAC	0.289	0.195
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	0.262	0.288
Linear	Distance <50m	ln CAC + 1	0.103	0.603
Linear	Distance <100m	ln CAC + 1	-0.060	0.711
Logistic	Distance <50m & >150m	CAC >75th %	0.060	0.800
Logistic	Distance <100m	CAC >75th %	-0.038	0.829
Linear	Distance <50m & >150m	ln CAC + 1	0.038	0.860
Logistic	Distance <50m	CAC >75th %	-0.020	0.925
Logistic	Distance <100m	Zero/Non-Zero CAC	0.002	0.990

Winston-Salem, Distance to Roadway / CAC Association, Model 1

Analysis Performed	Exposure	Outcome	Coef.	P-value
Linear	Distance <50m	ln CAC + 1	-0.569	0.004
Linear	Distance <50m & >150m	ln CAC + 1	-0.562	0.006
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.486	0.020
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	-0.450	0.036
Logistic	Distance <50m & >150m	CAC >75th %	-0.451	0.061
Logistic	Distance <50m	CAC >75th %	-0.429	0.068
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.256	0.166
Linear	Distance <100m	ln CAC + 1	-0.212	0.237
Logistic	Distance <100m	CAC >75th %	-0.132	0.510

Winston-Salem, Distance to Roadway / CAC Association, Model 2

Analysis Performed	Exposure	Outcome	Coef.	P-value
Linear	Distance <50m	ln CAC + 1	-0.510	0.016
Linear	Distance <50m & >150m	ln CAC + 1	-0.520	0.017
Logistic	Distance <50m	Zero/Non-Zero CAC	-0.462	0.048
Logistic	Distance <50m & >150m	Zero/Non-Zero CAC	-0.452	0.059
Logistic	Distance <50m & >150m	CAC >75th %	-0.389	0.142
Logistic	Distance <50m	CAC >75th %	-0.353	0.170
Logistic	Distance <100m	Zero/Non-Zero CAC	-0.229	0.269
Linear	Distance <100m	ln CAC + 1	-0.160	0.400
Logistic	Distance <100m	CAC >75th %	-0.084	0.706

Section C: Interaction Analyses by SNP

rs1050289 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	WFU	<50m	zero/non-zero	1.126	0.033	0.994
Model 1	WFU	<50m	CAC >75th %	1.129	0.055	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	1.027	0.056	0.994
Model 1	COL	<100m	CAC >75th %	-1.077	0.074	0.994
Model 1	WFU	<50m	ln CAC + 1	0.924	0.076	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	1.027	0.088	0.994
Model 1	JHU	<100m	zero/non-zero	-0.933	0.097	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.865	0.105	0.994
Model 1	COL	<50m	ln CAC + 1	-0.694	0.125	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	-1.046	0.126	0.994
Model 1	JHU	<50m	zero/non-zero	-0.966	0.146	0.994
Model 1	JHU	<100m	ln CAC + 1	-0.76	0.147	0.994
Model 1	COL	<50m	CAC >75th %	-0.725	0.18	0.994
Model 1	COL	<100m	ln CAC + 1	-0.74	0.181	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	-0.847	0.194	0.994
Model 1	COL	<50m	zero/non-zero	-0.629	0.218	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	0.844	0.232	0.994
Model 1	UCLA	<100m	CAC >75th %	-0.72	0.254	0.994
Model 1	COL	<100m	zero/non-zero	-0.681	0.264	0.994
Model 1	NWU	<100m	CAC >75th %	0.621	0.269	0.994
Model 1	JHU	<50m	ln CAC + 1	-0.688	0.285	0.994
Model 1	WFU	<100m	zero/non-zero	0.514	0.286	0.994
Model 1	COL	<50m & >150m	zero/non-zero	1.248	0.33	0.994
Model 1	UMN	<100m	ln CAC + 1	0.341	0.386	0.994
Model 1	JHU	<100m	CAC >75th %	-0.416	0.428	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	0.404	0.452	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	-0.32	0.522	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	0.501	0.539	0.994
Model 1	JHU	<50m	CAC >75th %	-0.388	0.54	0.994
Model 1	UMN	<50m	ln CAC + 1	0.289	0.547	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	-0.346	0.556	0.994
Model 1	NWU	<50m	zero/non-zero	-0.258	0.599	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	-0.333	0.611	0.994
Model 1	UMN	<50m	zero/non-zero	0.272	0.619	0.994
Model 1	WFU	<100m	CAC >75th %	0.278	0.623	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	-0.288	0.631	0.994

Model 1	WFU	<100m	ln CAC + 1	0.215	0.652	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	0.277	0.652	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	0.254	0.729	0.994
Model 1	UMN	<100m	CAC >75th %	0.13	0.765	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	-0.189	0.8	0.994
Model 1	NWU	<50m	ln CAC + 1	-0.105	0.801	0.994
Model 1	NWU	<50m	CAC >75th %	0.114	0.827	0.994
Model 1	UCLA	<50m	zero/non-zero	0.152	0.83	0.994
Model 1	UMN	<50m	CAC >75th %	-0.103	0.849	0.994
Model 1	UCLA	<50m	CAC >75th %	-0.132	0.853	0.994
Model 1	NWU	<100m	ln CAC + 1	-0.076	0.855	0.994
Model 1	UMN	<100m	zero/non-zero	0.074	0.863	0.994
Model 1	UCLA	<100m	ln CAC + 1	-0.076	0.89	0.994
Model 1	UCLA	<50m	ln CAC + 1	-0.059	0.928	0.994
Model 1	COL	<50m & >150m	CAC >75th %	-0.08	0.942	0.994
Model 1	UCLA	<100m	zero/non-zero	0.019	0.976	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	-0.01	0.988	0.994
Model 1	NWU	<100m	zero/non-zero	-0.006	0.99	0.994
Model 2	COL	<100m	CAC >75th %	-1.534	0.016	0.999
Model 2	COL	<50m	CAC >75th %	-0.975	0.089	0.999
Model 2	COL	<100m	ln CAC + 1	-0.964	0.089	0.999
Model 2	COL	<50m	ln CAC + 1	-0.769	0.094	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	-1.138	0.123	0.999
Model 2	JHU	<50m	zero/non-zero	-0.982	0.168	0.999
Model 2	COL	<100m	zero/non-zero	-0.862	0.17	0.999
Model 2	WFU	<50m	CAC >75th %	0.887	0.192	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	0.837	0.197	0.999
Model 2	WFU	<50m	zero/non-zero	0.757	0.238	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	0.807	0.244	0.999
Model 2	UCLA	<100m	CAC >75th %	-0.755	0.245	0.999
Model 2	UMN	<100m	ln CAC + 1	0.465	0.257	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	-0.587	0.269	0.999
Model 2	COL	<50m	zero/non-zero	-0.574	0.273	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	-0.732	0.287	0.999
Model 2	JHU	<100m	zero/non-zero	-0.655	0.288	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.601	0.32	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	0.757	0.336	0.999
Model 2	JHU	<100m	ln CAC + 1	-0.532	0.345	0.999
Model 2	WFU	<50m	ln CAC + 1	0.549	0.352	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.498	0.371	0.999
Model 2	NWU	<100m	ln CAC + 1	-0.384	0.374	0.999
Model 2	COL	<50m & >150m	zero/non-zero	1.072	0.41	0.999
Model 2	JHU	<50m	ln CAC + 1	-0.54	0.422	0.999

Model 2	NWU	<50m & >150m	zero/non-zero	-0.531	0.425	0.999
Model 2	NWU	<100m	CAC >75th %	0.419	0.485	0.999
Model 2	UMN	<50m	ln CAC + 1	0.335	0.493	0.999
Model 2	WFU	<100m	zero/non-zero	0.328	0.566	0.999
Model 2	NWU	<50m	ln CAC + 1	-0.225	0.614	0.999
Model 2	NWU	<50m	zero/non-zero	-0.273	0.616	0.999
Model 2	COL	<50m & >150m	CAC >75th %	-0.498	0.657	0.999
Model 2	UCLA	<100m	ln CAC + 1	-0.202	0.719	0.999
Model 2	JHU	<50m	CAC >75th %	-0.24	0.721	0.999
Model 2	NWU	<100m	zero/non-zero	-0.19	0.725	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	0.275	0.737	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	-0.256	0.741	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	-0.217	0.75	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	-0.201	0.774	0.999
Model 2	UMN	<50m	zero/non-zero	0.158	0.783	0.999
Model 2	UCLA	<50m	CAC >75th %	-0.198	0.787	0.999
Model 2	UMN	<100m	CAC >75th %	0.116	0.81	0.999
Model 2	UCLA	<50m	ln CAC + 1	-0.142	0.828	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	0.133	0.837	0.999
Model 2	UMN	<50m	CAC >75th %	0.105	0.856	0.999
Model 2	JHU	<100m	CAC >75th %	-0.085	0.882	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	-0.093	0.887	0.999
Model 2	UCLA	<100m	zero/non-zero	-0.087	0.891	0.999
Model 2	UMN	<100m	zero/non-zero	0.049	0.914	0.999
Model 2	WFU	<100m	CAC >75th %	0.046	0.943	0.999
Model 2	WFU	<100m	ln CAC + 1	0.025	0.962	0.999
Model 2	UCLA	<50m	zero/non-zero	0.019	0.979	0.999
Model 2	NWU	<50m	CAC >75th %	0.015	0.98	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	-0.01	0.99	0.999

JHU = Baltimore, NWU = Chicago, UCLA = Los Angeles, COL = New York, UMN = St. Paul, WFU = Winston-Salem

rs3736232 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	UCLA	<50m & >150m	zero/non-zero	0.819	0.009	0.994
Model 1	UCLA	<50m	zero/non-zero	0.762	0.01	0.994
Model 1	UCLA	<100m	zero/non-zero	0.518	0.029	0.994
Model 1	WFU	<50m	zero/non-zero	-0.492	0.09	0.994
Model 1	WFU	<100m	zero/non-zero	-0.409	0.111	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	-0.465	0.117	0.994
Model 1	WFU	<50m	ln CAC + 1	-0.443	0.118	0.994
Model 1	UMN	<100m	CAC >75th %	-0.339	0.132	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	0.471	0.132	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	-0.436	0.133	0.994
Model 1	UMN	<50m	ln CAC + 1	-0.368	0.144	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	-0.4	0.146	0.994
Model 1	UCLA	<50m	ln CAC + 1	0.383	0.146	0.994
Model 1	WFU	<50m	CAC >75th %	-0.485	0.157	0.994
Model 1	WFU	<100m	ln CAC + 1	-0.351	0.165	0.994
Model 1	NWU	<50m	CAC >75th %	0.362	0.176	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	0.365	0.177	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	-0.464	0.186	0.994
Model 1	UMN	<100m	ln CAC + 1	-0.271	0.2	0.994
Model 1	WFU	<100m	CAC >75th %	-0.308	0.272	0.994
Model 1	COL	<100m	ln CAC + 1	-0.252	0.286	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	-0.31	0.289	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	0.238	0.32	0.994
Model 1	UCLA	<100m	ln CAC + 1	0.185	0.39	0.994
Model 1	JHU	<100m	zero/non-zero	0.235	0.391	0.994
Model 1	UMN	<50m	CAC >75th %	-0.221	0.405	0.994
Model 1	COL	<50m	zero/non-zero	-0.176	0.437	0.994
Model 1	NWU	<50m	ln CAC + 1	0.163	0.443	0.994
Model 1	NWU	<50m	zero/non-zero	0.179	0.461	0.994
Model 1	COL	<100m	CAC >75th %	-0.2	0.472	0.994
Model 1	COL	<100m	zero/non-zero	-0.193	0.474	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	0.191	0.479	0.994
Model 1	UCLA	<100m	CAC >75th %	-0.168	0.486	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	0.219	0.495	0.994
Model 1	COL	<50m	CAC >75th %	-0.154	0.517	0.994
Model 1	JHU	<50m	zero/non-zero	0.191	0.542	0.994
Model 1	UMN	<100m	zero/non-zero	-0.136	0.555	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	-0.176	0.565	0.994
Model 1	JHU	<50m	CAC >75th %	-0.154	0.601	0.994

Model 1	UMN	<50m	zero/non-zero	-0.13	0.638	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	0.117	0.704	0.994
Model 1	UCLA	<50m	CAC >75th %	0.094	0.748	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	-0.083	0.771	0.994
Model 1	JHU	<50m	ln CAC + 1	-0.07	0.803	0.994
Model 1	NWU	<100m	ln CAC + 1	0.043	0.824	0.994
Model 1	JHU	<100m	CAC >75th %	-0.056	0.825	0.994
Model 1	COL	<50m & >150m	zero/non-zero	0.08	0.828	0.994
Model 1	NWU	<100m	CAC >75th %	0.052	0.831	0.994
Model 1	COL	<50m	ln CAC + 1	-0.039	0.846	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	-0.054	0.859	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	-0.055	0.868	0.994
Model 1	COL	<50m & >150m	CAC >75th %	0.041	0.916	0.994
Model 1	NWU	<100m	zero/non-zero	0.014	0.95	0.994
Model 1	JHU	<100m	ln CAC + 1	0.003	0.991	0.994
Model 2	UCLA	<50m	zero/non-zero	0.837	0.007	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	0.851	0.01	0.999
Model 2	UCLA	<100m	zero/non-zero	0.575	0.019	0.999
Model 2	UCLA	<50m	ln CAC + 1	0.45	0.093	0.999
Model 2	WFU	<50m	ln CAC + 1	-0.493	0.096	0.999
Model 2	WFU	<50m	zero/non-zero	-0.537	0.097	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	-0.484	0.097	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	-0.496	0.103	0.999
Model 2	UMN	<50m	ln CAC + 1	-0.419	0.11	0.999
Model 2	UMN	<100m	ln CAC + 1	-0.355	0.111	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	-0.509	0.123	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	0.48	0.149	0.999
Model 2	WFU	<50m	CAC >75th %	-0.528	0.154	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	-0.539	0.157	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	0.385	0.167	0.999
Model 2	UMN	<100m	CAC >75th %	-0.335	0.17	0.999
Model 2	NWU	<50m	CAC >75th %	0.376	0.176	0.999
Model 2	WFU	<100m	zero/non-zero	-0.362	0.211	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	-0.402	0.212	0.999
Model 2	WFU	<100m	ln CAC + 1	-0.328	0.223	0.999
Model 2	JHU	<100m	CAC >75th %	-0.273	0.331	0.999
Model 2	JHU	<50m	zero/non-zero	0.33	0.336	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	0.23	0.355	0.999
Model 2	WFU	<100m	CAC >75th %	-0.284	0.363	0.999
Model 2	UCLA	<100m	ln CAC + 1	0.196	0.371	0.999
Model 2	COL	<100m	CAC >75th %	-0.259	0.373	0.999
Model 2	UCLA	<100m	CAC >75th %	-0.223	0.374	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	-0.296	0.375	0.999

Model 2	UMN	<50m	CAC >75th %	-0.252	0.379	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	0.307	0.383	0.999
Model 2	COL	<100m	ln CAC + 1	-0.195	0.42	0.999
Model 2	COL	<50m	CAC >75th %	-0.193	0.434	0.999
Model 2	JHU	<50m	CAC >75th %	-0.248	0.441	0.999
Model 2	NWU	<50m	ln CAC + 1	0.154	0.48	0.999
Model 2	NWU	<50m	zero/non-zero	0.172	0.505	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	0.178	0.54	0.999
Model 2	COL	<50m	zero/non-zero	-0.132	0.571	0.999
Model 2	COL	<100m	zero/non-zero	-0.15	0.594	0.999
Model 2	JHU	<100m	ln CAC + 1	-0.126	0.628	0.999
Model 2	UMN	<50m	zero/non-zero	-0.138	0.653	0.999
Model 2	UMN	<100m	zero/non-zero	-0.111	0.657	0.999
Model 2	JHU	<100m	zero/non-zero	0.129	0.669	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	-0.11	0.716	0.999
Model 2	NWU	<100m	ln CAC + 1	0.07	0.725	0.999
Model 2	UCLA	<50m	CAC >75th %	0.099	0.742	0.999
Model 2	COL	<50m & >150m	zero/non-zero	0.12	0.76	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	0.088	0.785	0.999
Model 2	NWU	<100m	CAC >75th %	0.07	0.785	0.999
Model 2	JHU	<50m	ln CAC + 1	-0.077	0.795	0.999
Model 2	COL	<50m & >150m	CAC >75th %	-0.098	0.816	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	-0.035	0.919	0.999
Model 2	NWU	<100m	zero/non-zero	0.008	0.975	0.999
Model 2	COL	<50m	ln CAC + 1	0.002	0.992	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	0.002	0.994	0.999

rs3816844 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	UCLA	<50m & >150m	zero/non-zero	-0.819	0.009	0.994
Model 1	UCLA	<50m	zero/non-zero	-0.762	0.01	0.994
Model 1	UCLA	<100m	zero/non-zero	-0.518	0.029	0.994
Model 1	WFU	<50m	zero/non-zero	0.492	0.09	0.994
Model 1	WFU	<100m	zero/non-zero	0.409	0.111	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	0.465	0.117	0.994
Model 1	WFU	<50m	ln CAC + 1	0.443	0.118	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	-0.483	0.123	0.994
Model 1	UMN	<100m	CAC >75th %	0.339	0.132	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.436	0.133	0.994
Model 1	UMN	<50m	ln CAC + 1	0.368	0.144	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	0.4	0.146	0.994
Model 1	UCLA	<50m	ln CAC + 1	-0.383	0.146	0.994
Model 1	WFU	<50m	CAC >75th %	0.485	0.157	0.994
Model 1	WFU	<100m	ln CAC + 1	0.351	0.165	0.994
Model 1	NWU	<50m	CAC >75th %	-0.368	0.17	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	-0.365	0.177	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.464	0.186	0.994
Model 1	UMN	<100m	ln CAC + 1	0.271	0.2	0.994
Model 1	WFU	<100m	CAC >75th %	0.308	0.272	0.994
Model 1	COL	<100m	ln CAC + 1	0.252	0.286	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	0.31	0.289	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	-0.232	0.333	0.994
Model 1	UCLA	<100m	ln CAC + 1	-0.185	0.39	0.994
Model 1	JHU	<100m	zero/non-zero	-0.235	0.391	0.994
Model 1	UMN	<50m	CAC >75th %	0.221	0.405	0.994
Model 1	COL	<50m	zero/non-zero	0.176	0.437	0.994
Model 1	NWU	<50m	ln CAC + 1	-0.16	0.452	0.994
Model 1	NWU	<50m	zero/non-zero	-0.177	0.466	0.994
Model 1	COL	<100m	CAC >75th %	0.2	0.472	0.994
Model 1	COL	<100m	zero/non-zero	0.193	0.474	0.994
Model 1	UCLA	<100m	CAC >75th %	0.168	0.486	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	-0.188	0.487	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	-0.219	0.495	0.994
Model 1	COL	<50m	CAC >75th %	0.154	0.517	0.994
Model 1	JHU	<50m	zero/non-zero	-0.191	0.542	0.994
Model 1	UMN	<100m	zero/non-zero	0.136	0.555	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	0.176	0.565	0.994
Model 1	JHU	<50m	CAC >75th %	0.154	0.601	0.994

Model 1	UMN	<50m	zero/non-zero	0.13	0.638	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	-0.117	0.704	0.994
Model 1	UCLA	<50m	CAC >75th %	-0.094	0.748	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	0.083	0.771	0.994
Model 1	JHU	<50m	ln CAC + 1	0.07	0.803	0.994
Model 1	NWU	<100m	CAC >75th %	-0.058	0.81	0.994
Model 1	JHU	<100m	CAC >75th %	0.056	0.825	0.994
Model 1	COL	<50m & >150m	zero/non-zero	-0.08	0.828	0.994
Model 1	NWU	<100m	ln CAC + 1	-0.038	0.844	0.994
Model 1	COL	<50m	ln CAC + 1	0.039	0.846	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	0.054	0.859	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	0.055	0.868	0.994
Model 1	COL	<50m & >150m	CAC >75th %	-0.041	0.916	0.994
Model 1	NWU	<100m	zero/non-zero	-0.011	0.959	0.994
Model 1	JHU	<100m	ln CAC + 1	-0.003	0.991	0.994
Model 2	UCLA	<50m	zero/non-zero	-0.837	0.007	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	-0.851	0.01	0.999
Model 2	UCLA	<100m	zero/non-zero	-0.575	0.019	0.999
Model 2	UCLA	<50m	ln CAC + 1	-0.45	0.093	0.999
Model 2	WFU	<50m	ln CAC + 1	0.493	0.096	0.999
Model 2	WFU	<50m	zero/non-zero	0.537	0.097	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.484	0.097	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.496	0.103	0.999
Model 2	UMN	<50m	ln CAC + 1	0.419	0.11	0.999
Model 2	UMN	<100m	ln CAC + 1	0.355	0.111	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	0.509	0.123	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	-0.503	0.131	0.999
Model 2	WFU	<50m	CAC >75th %	0.528	0.154	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	0.539	0.157	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	-0.385	0.167	0.999
Model 2	NWU	<50m	CAC >75th %	-0.385	0.167	0.999
Model 2	UMN	<100m	CAC >75th %	0.335	0.17	0.999
Model 2	WFU	<100m	zero/non-zero	0.362	0.211	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	0.402	0.212	0.999
Model 2	WFU	<100m	ln CAC + 1	0.328	0.223	0.999
Model 2	JHU	<100m	CAC >75th %	0.273	0.331	0.999
Model 2	JHU	<50m	zero/non-zero	-0.33	0.336	0.999
Model 2	WFU	<100m	CAC >75th %	0.284	0.363	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	-0.226	0.363	0.999
Model 2	UCLA	<100m	ln CAC + 1	-0.196	0.371	0.999
Model 2	COL	<100m	CAC >75th %	0.259	0.373	0.999
Model 2	UCLA	<100m	CAC >75th %	0.223	0.374	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	0.296	0.375	0.999

Model 2	UMN	<50m	CAC >75th %	0.252	0.379	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	-0.307	0.383	0.999
Model 2	COL	<100m	ln CAC + 1	0.195	0.42	0.999
Model 2	COL	<50m	CAC >75th %	0.193	0.434	0.999
Model 2	JHU	<50m	CAC >75th %	0.248	0.441	0.999
Model 2	NWU	<50m	ln CAC + 1	-0.151	0.489	0.999
Model 2	NWU	<50m	zero/non-zero	-0.17	0.512	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	-0.174	0.55	0.999
Model 2	COL	<50m	zero/non-zero	0.132	0.571	0.999
Model 2	COL	<100m	zero/non-zero	0.15	0.594	0.999
Model 2	JHU	<100m	ln CAC + 1	0.126	0.628	0.999
Model 2	UMN	<50m	zero/non-zero	0.134	0.653	0.999
Model 2	UMN	<100m	zero/non-zero	0.111	0.657	0.999
Model 2	JHU	<100m	zero/non-zero	-0.129	0.669	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	0.11	0.716	0.999
Model 2	UCLA	<50m	CAC >75th %	-0.099	0.742	0.999
Model 2	NWU	<100m	ln CAC + 1	-0.065	0.744	0.999
Model 2	NWU	<100m	CAC >75th %	-0.08	0.756	0.999
Model 2	COL	<50m & >150m	zero/non-zero	-0.12	0.76	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	-0.088	0.785	0.999
Model 2	JHU	<50m	ln CAC + 1	0.077	0.795	0.999
Model 2	COL	<50m & >150m	CAC >75th %	0.098	0.816	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	0.035	0.919	0.999
Model 2	NWU	<100m	zero/non-zero	-0.003	0.989	0.999
Model 2	COL	<50m	ln CAC + 1	-0.002	0.992	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	-0.002	0.994	0.999

rs6488265 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	UCLA	<50m	zero/non-zero	0.75	0.008	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	0.779	0.009	0.994
Model 1	COL	<100m	CAC >75th %	-0.707	0.017	0.994
Model 1	UCLA	<100m	zero/non-zero	0.493	0.028	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	0.571	0.059	0.994
Model 1	COL	<50m	CAC >75th %	-0.424	0.081	0.994
Model 1	COL	<100m	ln CAC + 1	-0.415	0.083	0.994
Model 1	COL	<50m & >150m	CAC >75th %	-0.725	0.09	0.994
Model 1	COL	<100m	zero/non-zero	-0.44	0.121	0.994
Model 1	UMN	<100m	CAC >75th %	-0.353	0.122	0.994
Model 1	UMN	<50m	ln CAC + 1	-0.381	0.127	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	-0.44	0.129	0.994
Model 1	COL	<50m	zero/non-zero	-0.347	0.133	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	-0.398	0.147	0.994
Model 1	NWU	<50m	CAC >75th %	0.349	0.178	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	-0.461	0.195	0.994
Model 1	UCLA	<50m	ln CAC + 1	0.324	0.2	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	0.297	0.253	0.994
Model 1	UMN	<100m	ln CAC + 1	-0.241	0.267	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	0.344	0.27	0.994
Model 1	UMN	<50m	CAC > 75th %	-0.285	0.273	0.994
Model 1	JHU	<50m	zero/non-zero	0.323	0.287	0.994
Model 1	COL	<50m & >150m	zero/non-zero	-0.433	0.291	0.994
Model 1	UMN	<100m	zero/non-zero	-0.243	0.296	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	0.224	0.326	0.994
Model 1	UCLA	<100m	CAC >75th %	-0.223	0.329	0.994
Model 1	NWU	<50m	ln CAC + 1	0.195	0.337	0.994
Model 1	COL	<50m	ln CAC + 1	-0.191	0.342	0.994
Model 1	JHU	<100m	zero/non-zero	0.245	0.359	0.994
Model 1	NWU	<100m	CAC >75th %	0.208	0.368	0.994
Model 1	UMN	<50m	zero/non-zero	-0.238	0.38	0.994
Model 1	UCLA	<100m	ln CAC + 1	0.177	0.385	0.994
Model 1	NWU	<100m	zero/non-zero	0.171	0.422	0.994
Model 1	NWU	<50m	zero/non-zero	0.187	0.426	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	0.204	0.434	0.994
Model 1	JHU	<100m	CAC >75th %	-0.182	0.481	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	-0.211	0.485	0.994
Model 1	JHU	<50m	CAC >75th %	-0.199	0.493	0.994
Model 1	NWU	<100m	ln CAC + 1	0.124	0.502	0.994

Model 1	WFU	<100m	ln CAC + 1	-0.159	0.522	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	-0.187	0.538	0.994
Model 1	WFU	<100m	zero/non-zero	-0.152	0.549	0.994
Model 1	WFU	<100m	CAC >75th %	-0.142	0.602	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	0.111	0.71	0.994
Model 1	UCLA	<50m	CAC >75th %	0.1	0.723	0.994
Model 1	JHU	<100m	ln CAC + 1	-0.069	0.779	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	-0.038	0.892	0.994
Model 1	WFU	<50m	ln CAC + 1	0.031	0.913	0.994
Model 1	WFU	<50m	zero/non-zero	0.024	0.934	0.994
Model 1	WFU	<50m	CAC >75th %	0.023	0.944	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.02	0.952	0.994
Model 1	JHU	<50m	ln CAC + 1	0.01	0.972	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	-0.006	0.983	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.005	0.985	0.994
Model 2	UCLA	<50m	zero/non-zero	0.817	0.005	0.999
Model 2	COL	<100m	CAC >75th %	-0.855	0.006	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	0.788	0.012	0.999
Model 2	UCLA	<100m	zero/non-zero	0.524	0.025	0.999
Model 2	COL	<50m & >150m	CAC >75th %	-0.96	0.039	0.999
Model 2	COL	<50m	CAC >75th %	-0.458	0.069	0.999
Model 2	COL	<100m	ln CAC + 1	-0.418	0.087	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	0.522	0.108	0.999
Model 2	UMN	<50m	ln CAC + 1	-0.417	0.111	0.999
Model 2	UMN	<100m	CAC >75th %	-0.384	0.121	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	-0.493	0.123	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	-0.452	0.123	0.999
Model 2	COL	<100m	zero/non-zero	-0.456	0.123	0.999
Model 2	UCLA	<50m	ln CAC + 1	0.393	0.128	0.999
Model 2	UMN	<100m	ln CAC + 1	-0.303	0.186	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	-0.467	0.203	0.999
Model 2	COL	<50m	zero/non-zero	-0.303	0.204	0.999
Model 2	UCLA	<100m	CAC >75th %	-0.293	0.218	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	0.304	0.257	0.999
Model 2	JHU	<100m	CAC >75th %	-0.307	0.278	0.999
Model 2	UMN	<100m	zero/non-zero	-0.258	0.311	0.999
Model 2	UMN	<50m	CAC >75th %	-0.274	0.33	0.999
Model 2	UMN	<50m	zero/non-zero	-0.281	0.338	0.999
Model 2	COL	<50m & >150m	zero/non-zero	-0.416	0.338	0.999
Model 2	NWU	<50m	CAC >75th %	0.257	0.348	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	0.314	0.363	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	-0.291	0.379	0.999
Model 2	JHU	<50m	zero/non-zero	0.296	0.382	0.999

Model 2	UCLA	<100m	ln CAC + 1	0.173	0.407	0.999
Model 2	JHU	<50m	CAC >75th %	-0.258	0.422	0.999
Model 2	NWU	<50m	zero/non-zero	0.202	0.427	0.999
Model 2	COL	<50m	ln CAC + 1	-0.158	0.44	0.999
Model 2	JHU	<100m	zero/non-zero	0.197	0.504	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	0.189	0.508	0.999
Model 2	NWU	<50m	ln CAC + 1	0.133	0.534	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	0.145	0.546	0.999
Model 2	NWU	<100m	CAC >75th %	0.147	0.548	0.999
Model 2	NWU	<100m	zero/non-zero	0.136	0.555	0.999
Model 2	WFU	<100m	CAC >75th %	-0.17	0.58	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	-0.181	0.588	0.999
Model 2	JHU	<100m	ln CAC + 1	-0.117	0.651	0.999
Model 2	WFU	<100m	zero/non-zero	-0.127	0.66	0.999
Model 2	WFU	<100m	ln CAC + 1	-0.108	0.687	0.999
Model 2	UCLA	<50m	CAC >75th %	0.104	0.722	0.999
Model 2	NWU	<100m	ln CAC + 1	0.065	0.736	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	-0.087	0.774	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	0.085	0.786	0.999
Model 2	JHU	<50m	ln CAC + 1	-0.051	0.865	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	-0.037	0.92	0.999
Model 2	WFU	<50m	ln CAC + 1	0.028	0.926	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	-0.029	0.931	0.999
Model 2	WFU	<50m	CAC >75th %	-0.009	0.98	0.999
Model 2	WFU	<50m	zero/non-zero	-0.007	0.983	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.002	0.996	0.999

rs12309394 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	NWU	<100m	ln CAC + 1	1.285	0.019	0.994
Model 1	NWU	<100m	zero/non-zero	1.726	0.022	0.994
Model 1	COL	<50m & >150m	CAC >75th %	-1.421	0.049	0.994
Model 1	WFU	<100m	ln CAC + 1	0.85	0.069	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	1.237	0.078	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	-1.096	0.082	0.994
Model 1	WFU	<50m	ln CAC + 1	0.729	0.129	0.994
Model 1	COL	<50m & >150m	zero/non-zero	-1.041	0.141	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	1.372	0.147	0.994
Model 1	WFU	<100m	zero/non-zero	0.67	0.158	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.691	0.164	0.994
Model 1	WFU	<50m	zero/non-zero	0.66	0.178	0.994
Model 1	UCLA	<100m	ln CAC + 1	-1.171	0.193	0.994
Model 1	NWU	<50m	ln CAC + 1	0.811	0.198	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	1.035	0.215	0.994
Model 1	JHU	<50m	zero/non-zero	1.018	0.216	0.994
Model 1	WFU	<100m	CAC >75th %	0.623	0.237	0.994
Model 1	NWU	<100m	CAC >75th %	0.764	0.241	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	0.588	0.246	0.994
Model 1	JHU	<100m	zero/non-zero	0.794	0.259	0.994
Model 1	NWU	<50m	zero/non-zero	0.971	0.272	0.994
Model 1	JHU	<50m	ln CAC + 1	0.618	0.365	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.509	0.37	0.994
Model 1	JHU	<100m	CAC >75th %	-0.588	0.382	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	-0.663	0.389	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	0.568	0.41	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	0.714	0.412	0.994
Model 1	WFU	<50m	CAC >75th %	0.444	0.415	0.994
Model 1	UCLA	<100m	CAC >75th %	-0.835	0.422	0.994
Model 1	COL	<100m	CAC >75th %	-0.448	0.424	0.994
Model 1	UCLA	<100m	zero/non-zero	-0.667	0.5	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	-0.824	0.53	0.994
Model 1	COL	<50m	CAC >75th %	-0.315	0.552	0.994
Model 1	JHU	<50m	CAC >75th %	-0.42	0.579	0.994
Model 1	COL	<50m	zero/non-zero	0.216	0.653	0.994
Model 1	UCLA	<50m	ln CAC + 1	-0.528	0.684	0.994
Model 1	UMN	<100m	ln CAC + 1	0.588	0.713	0.994
Model 1	UCLA	<50m	zero/non-zero	0.455	0.749	0.994
Model 1	COL	<50m	ln CAC + 1	0.123	0.763	0.994
Model 1	COL	<100m	ln CAC + 1	-0.133	0.768	0.994
Model 1	NWU	<50m	CAC >75th %	0.197	0.777	0.994
Model 1	UMN	<50m	ln CAC + 1	-0.498	0.78	0.994
Model 1	JHU	<100m	ln CAC + 1	0.131	0.829	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	0.285	0.848	0.994
Model 1	UCLA	<50m	CAC >75th %	0.215	0.876	0.994

Model 1	UMN	<50m & >150m	ln CAC + 1	-0.225	0.902	0.994
Model 1	COL	<100m	zero/non-zero	0.063	0.907	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	-0.046	0.976	0.994
Model 2	NWU	<100m	zero/non-zero	1.613	0.042	0.999
Model 2	NWU	<100m	ln CAC + 1	1.133	0.045	0.999
Model 2	JHU	<100m	zero/non-zero	1.467	0.062	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	1.632	0.078	0.999
Model 2	WFU	<50m	ln CAC + 1	0.881	0.082	0.999
Model 2	COL	<50m & >150m	CAC >75th %	-1.265	0.094	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	1.197	0.1	0.999
Model 2	JHU	<50m	zero/non-zero	1.46	0.111	0.999
Model 2	WFU	<100m	ln CAC + 1	0.778	0.115	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	1.14	0.125	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.787	0.13	0.999
Model 2	JHU	<50m	ln CAC + 1	1.11	0.132	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	-0.949	0.135	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	1.372	0.164	0.999
Model 2	WFU	<50m	zero/non-zero	0.746	0.173	0.999
Model 2	JHU	<100m	ln CAC + 1	0.806	0.22	0.999
Model 2	NWU	<100m	CAC >75th %	0.859	0.221	0.999
Model 2	COL	<50m & >150m	zero/non-zero	-0.824	0.256	0.999
Model 2	UCLA	<100m	ln CAC + 1	-1.003	0.269	0.999
Model 2	WFU	<100m	zero/non-zero	0.557	0.293	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	0.581	0.298	0.999
Model 2	NWU	<50m	ln CAC + 1	0.644	0.31	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	0.968	0.319	0.999
Model 2	NWU	<50m	zero/non-zero	0.904	0.323	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	0.565	0.355	0.999
Model 2	WFU	<50m	CAC >75th %	0.539	0.367	0.999
Model 2	UCLA	<100m	CAC >75th %	-0.894	0.394	0.999
Model 2	WFU	<100m	CAC >75th %	0.407	0.488	0.999
Model 2	UCLA	<100m	zero/non-zero	-0.622	0.529	0.999
Model 2	UMN	<100m	ln CAC + 1	0.809	0.61	0.999
Model 2	UCLA	<50m	zero/non-zero	0.657	0.648	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	-0.588	0.656	0.999
Model 2	COL	<50m	CAC >75th %	-0.236	0.669	0.999
Model 2	COL	<50m	zero/non-zero	0.203	0.685	0.999
Model 2	COL	<100m	CAC >75th %	-0.237	0.689	0.999
Model 2	COL	<50m	ln CAC + 1	0.162	0.696	0.999
Model 2	JHU	<100m	CAC >75th %	-0.255	0.722	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	0.494	0.744	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	-0.234	0.773	0.999
Model 2	COL	<100m	zero/non-zero	0.162	0.775	0.999
Model 2	UCLA	<50m	ln CAC + 1	-0.304	0.815	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.348	0.849	0.999
Model 2	UCLA	<50m	CAC >75th %	0.233	0.867	0.999
Model 2	COL	<100m	ln CAC + 1	-0.055	0.906	0.999
Model 2	NWU	<50m	CAC >75th %	0.077	0.915	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	-0.139	0.929	0.999

Model 2	UMN	<50m	ln CAC + 1	-0.123	0.945	0.999
Model 2	JHU	<50m	CAC >75th %	-0.012	0.988	0.999
Model 1	UMN	<50m	zero/non-zero	omitted	omitted	omitted
Model 1	UMN	<100m	zero/non-zero	omitted	omitted	omitted
Model 1	UMN	<50m & >150m	zero/non-zero	omitted	omitted	omitted
Model 1	UMN	<50m	CAC >75th %	omitted	omitted	omitted
Model 1	UMN	<100m	CAC >75th %	omitted	omitted	omitted
Model 1	UMN	<50m & >150m	CAC >75th %	omitted	omitted	omitted
Model 2	UMN	<50m	zero/non-zero	omitted	omitted	omitted
Model 2	UMN	<100m	zero/non-zero	omitted	omitted	omitted
Model 2	UMN	<50m & >150m	zero/non-zero	omitted	omitted	omitted
Model 2	UMN	<50m	CAC >75th %	omitted	omitted	omitted
Model 2	UMN	<100m	CAC >75th %	omitted	omitted	omitted
Model 2	UMN	<50m & >150m	CAC >75th %	omitted	omitted	omitted

STATA 11.2 omits results for this analysis due to colinearity. Of 843 individuals at the UMN site there were 837 with the CC allele at rs12309394. The remaining six were all Hispanic with the TC allele.

rs2742113 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	JHU	<50m & >150m	CAC >75th %	0.674	0.028	0.994
Model 1	JHU	<50m	CAC >75th %	0.632	0.033	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	0.597	0.036	0.994
Model 1	JHU	<100m	ln CAC + 1	0.5	0.039	0.994
Model 1	JHU	<100m	CAC >75th %	0.487	0.057	0.994
Model 1	JHU	<50m	ln CAC + 1	0.523	0.062	0.994
Model 1	WFU	<100m	zero/non-zero	0.437	0.093	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	-0.501	0.104	0.994
Model 1	UCLA	<50m	ln CAC + 1	-0.426	0.108	0.994
Model 1	UCLA	<50m	zero/non-zero	-0.464	0.116	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	-0.427	0.116	0.994
Model 1	UCLA	<50m	CAC >75th %	-0.402	0.188	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	0.398	0.19	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	0.415	0.194	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	-0.41	0.199	0.994
Model 1	WFU	<50m	zero/non-zero	0.371	0.212	0.994
Model 1	UMN	<100m	CAC >75th %	0.297	0.223	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	0.373	0.232	0.994
Model 1	COL	<100m	ln CAC + 1	0.265	0.242	0.994
Model 1	UCLA	<100m	zero/non-zero	-0.247	0.295	0.994
Model 1	JHU	<100m	zero/non-zero	0.276	0.299	0.994
Model 1	NWU	<100m	zero/non-zero	0.227	0.305	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	-0.299	0.333	0.994
Model 1	NWU	<100m	ln CAC + 1	0.184	0.339	0.994
Model 1	COL	<50m	ln CAC + 1	0.183	0.351	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	0.28	0.363	0.994
Model 1	UMN	<50m	CAC >75th %	0.255	0.371	0.994
Model 1	JHU	<50m	zero/non-zero	0.266	0.376	0.994
Model 1	COL	<100m	CAC >75th %	0.241	0.381	0.994
Model 1	COL	<50m	CAC >75th %	0.184	0.441	0.994
Model 1	COL	<50m	zero/non-zero	0.171	0.451	0.994
Model 1	UMN	<100m	ln CAC + 1	0.175	0.452	0.994
Model 1	COL	<50m & >150m	CAC >75th %	0.284	0.457	0.994
Model 1	UMN	<50m	ln CAC + 1	0.196	0.474	0.994
Model 1	UCLA	<100m	ln CAC + 1	-0.13	0.546	0.994
Model 1	COL	<100m	zero/non-zero	0.162	0.547	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	0.179	0.548	0.994
Model 1	NWU	<50m	zero/non-zero	0.14	0.56	0.994
Model 1	UCLA	<100m	CAC >75th %	0.136	0.57	0.994
Model 1	NWU	<50m	CAC >75th %	-0.139	0.603	0.994
Model 1	COL	<50m & >150m	zero/non-zero	0.185	0.614	0.994
Model 1	WFU	<50m	CAC >75th %	0.164	0.62	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	-0.154	0.635	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.134	0.695	0.994
Model 1	WFU	<100m	ln CAC + 1	0.085	0.734	0.994

Model 1	NWU	<50m & >150m	zero/non-zero	0.083	0.755	0.994
Model 1	NWU	<100m	CAC >75th %	0.074	0.759	0.994
Model 1	UMN	<50m	zero/non-zero	-0.089	0.762	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.085	0.771	0.994
Model 1	UMN	<100m	zero/non-zero	0.069	0.784	0.994
Model 1	WFU	<50m	ln CAC + 1	0.047	0.867	0.994
Model 1	NWU	<50m	ln CAC + 1	0.035	0.867	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	-0.007	0.978	0.994
Model 1	WFU	<100m	CAC >75th %	0.002	0.994	0.994
Model 2	JHU	<100m	CAC >75th %	0.711	0.013	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	0.779	0.02	0.999
Model 2	JHU	<100m	ln CAC + 1	0.588	0.023	0.999
Model 2	JHU	<50m	CAC >75th %	0.697	0.032	0.999
Model 2	UCLA	<50m	ln CAC + 1	-0.52	0.054	0.999
Model 2	UCLA	<50m	zero/non-zero	-0.558	0.07	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	0.526	0.083	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	-0.464	0.096	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	-0.537	0.099	0.999
Model 2	JHU	<50m	ln CAC + 1	0.431	0.148	0.999
Model 2	UCLA	<50m	CAC >75th %	-0.45	0.154	0.999
Model 2	JHU	<100m	zero/non-zero	0.413	0.155	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	0.472	0.155	0.999
Model 2	UCLA	<100m	zero/non-zero	-0.325	0.186	0.999
Model 2	NWU	<100m	zero/non-zero	0.307	0.194	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	-0.42	0.208	0.999
Model 2	WFU	<100m	zero/non-zero	0.342	0.239	0.999
Model 2	NWU	<100m	ln CAC + 1	0.233	0.239	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	0.404	0.248	0.999
Model 2	COL	<100m	CAC >75th %	0.323	0.26	0.999
Model 2	COL	<100m	ln CAC + 1	0.252	0.274	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	0.363	0.279	0.999
Model 2	UMN	<100m	CAC >75th %	0.286	0.288	0.999
Model 2	WFU	<50m	zero/non-zero	0.338	0.304	0.999
Model 2	COL	<50m	CAC >75th %	0.245	0.32	0.999
Model 2	COL	<50m & >150m	CAC >75th %	0.394	0.338	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	-0.305	0.35	0.999
Model 2	COL	<50m	ln CAC + 1	0.186	0.35	0.999
Model 2	UMN	<100m	ln CAC + 1	0.219	0.38	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	0.269	0.419	0.999
Model 2	UMN	<50m	ln CAC + 1	0.233	0.427	0.999
Model 2	UMN	<50m	CAC >75th %	0.239	0.447	0.999
Model 2	UCLA	<100m	ln CAC + 1	-0.165	0.452	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.234	0.469	0.999
Model 2	NWU	<50m	zero/non-zero	0.178	0.484	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	0.241	0.522	0.999
Model 2	COL	<50m	zero/non-zero	0.149	0.525	0.999
Model 2	COL	<100m	zero/non-zero	0.174	0.529	0.999
Model 2	WFU	<50m	CAC >75th %	0.221	0.545	0.999
Model 2	JHU	<50m	zero/non-zero	0.193	0.553	0.999

Model 2	UMN	<50m & >150m	zero/non-zero	-0.215	0.554	0.999
Model 2	COL	<50m & >150m	zero/non-zero	0.225	0.563	0.999
Model 2	UCLA	<100m	CAC >75th %	0.138	0.58	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	0.149	0.6	0.999
Model 2	WFU	<100m	CAC >75th %	0.125	0.69	0.999
Model 2	NWU	<50m	CAC >75th %	-0.109	0.693	0.999
Model 2	NWU	<50m	ln CAC + 1	0.084	0.698	0.999
Model 2	NWU	<100m	CAC >75th %	0.09	0.72	0.999
Model 2	UMN	<50m	zero/non-zero	-0.104	0.749	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.074	0.809	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	0.057	0.818	0.999
Model 2	WFU	<100m	ln CAC + 1	0.029	0.913	0.999
Model 2	WFU	<50m	ln CAC + 1	0.019	0.95	0.999
Model 2	UMN	<100m	zero/non-zero	0.017	0.951	0.999

rs2742115 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	JHU	<50m & >150m	CAC >75th %	-1.075	0.006	0.994
Model 1	JHU	<50m	CAC >75th %	-0.957	0.009	0.994
Model 1	WFU	<100m	zero/non-zero	-0.817	0.017	0.994
Model 1	JHU	<100m	CAC >75th %	-0.722	0.02	0.994
Model 1	UCLA	<50m	zero/non-zero	0.65	0.024	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	0.655	0.029	0.994
Model 1	JHU	<100m	ln CAC + 1	-0.646	0.03	0.994
Model 1	JHU	<100m	zero/non-zero	-0.705	0.037	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	-0.834	0.038	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	-0.723	0.046	0.994
Model 1	COL	<50m	zero/non-zero	-0.55	0.051	0.994
Model 1	WFU	<100m	ln CAC + 1	-0.617	0.059	0.994
Model 1	WFU	<50m	zero/non-zero	-0.734	0.063	0.994
Model 1	UCLA	<50m	ln CAC + 1	0.474	0.064	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	-0.686	0.071	0.994
Model 1	COL	<50m	ln CAC + 1	-0.437	0.077	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	-0.693	0.084	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	-0.696	0.095	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	-0.525	0.096	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	0.437	0.096	0.994
Model 1	COL	<100m	ln CAC + 1	-0.463	0.103	0.994
Model 1	UMN	<100m	CAC >75th %	-0.389	0.109	0.994
Model 1	COL	<100m	zero/non-zero	-0.539	0.11	0.994
Model 1	COL	<50m & >150m	zero/non-zero	-0.751	0.113	0.994
Model 1	JHU	<50m	ln CAC + 1	-0.593	0.129	0.994
Model 1	UCLA	<50m	CAC >75th %	0.418	0.153	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	0.454	0.159	0.994
Model 1	UMN	<100m	ln CAC + 1	-0.328	0.161	0.994
Model 1	JHU	<50m	zero/non-zero	-0.533	0.169	0.994
Model 1	WFU	<50m	ln CAC + 1	-0.512	0.169	0.994
Model 1	WFU	<100m	CAC >75th %	-0.488	0.17	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	-0.564	0.193	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	-0.387	0.199	0.994
Model 1	COL	<100m	CAC >75th %	-0.44	0.204	0.994
Model 1	UCLA	<100m	zero/non-zero	0.286	0.212	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	0.37	0.228	0.994
Model 1	UMN	<50m	CAC >75th %	-0.335	0.236	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	0.286	0.246	0.994
Model 1	UMN	<100m	zero/non-zero	-0.286	0.258	0.994
Model 1	COL	<50m & >150m	CAC >75th %	-0.527	0.285	0.994
Model 1	WFU	<50m	CAC >75th %	-0.438	0.3	0.994
Model 1	UCLA	<100m	CAC >75th %	-0.237	0.305	0.994
Model 1	COL	<50m	CAC >75th %	-0.289	0.323	0.994
Model 1	UMN	<50m	ln CAC + 1	-0.26	0.346	0.994
Model 1	NWU	<50m	ln CAC + 1	0.203	0.355	0.994

Model 1	NWU	<50m & >150m	zero/non-zero	0.25	0.378	0.994
Model 1	NWU	<50m	CAC >75th %	0.233	0.409	0.994
Model 1	UCLA	<100m	ln CAC + 1	0.152	0.466	0.994
Model 1	NWU	<50m	zero/non-zero	0.162	0.527	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	-0.193	0.559	0.994
Model 1	NWU	<100m	CAC >75th %	0.112	0.649	0.994
Model 1	UMN	<50m	zero/non-zero	-0.077	0.793	0.994
Model 1	NWU	<100m	ln CAC + 1	0.033	0.865	0.994
Model 1	NWU	<100m	zero/non-zero	-0.024	0.918	0.994
Model 2	JHU	<50m & >150m	CAC >75th %	-1.18	0.004	0.999
Model 2	JHU	<50m	CAC >75th %	-1.112	0.005	0.999
Model 2	JHU	<100m	CAC >75th %	-0.892	0.008	0.999
Model 2	UCLA	<50m	zero/non-zero	0.722	0.016	0.999
Model 2	JHU	<100m	zero/non-zero	-0.8	0.027	0.999
Model 2	UCLA	<50m	ln CAC + 1	0.548	0.035	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	0.659	0.038	0.999
Model 2	WFU	<100m	zero/non-zero	-0.81	0.039	0.999
Model 2	JHU	<100m	ln CAC + 1	-0.631	0.042	0.999
Model 2	COL	<50m	zero/non-zero	-0.551	0.059	0.999
Model 2	COL	<50m	ln CAC + 1	-0.461	0.068	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	-0.791	0.075	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	-0.725	0.087	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	-0.719	0.089	0.999
Model 2	COL	<100m	ln CAC + 1	-0.489	0.09	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	0.445	0.099	0.999
Model 2	COL	<100m	zero/non-zero	-0.569	0.101	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	-0.567	0.107	0.999
Model 2	WFU	<100m	ln CAC + 1	-0.559	0.109	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	-0.601	0.11	0.999
Model 2	COL	<50m & >150m	zero/non-zero	-0.758	0.126	0.999
Model 2	WFU	<50m	zero/non-zero	-0.645	0.142	0.999
Model 2	UCLA	<50m	CAC >75th %	0.444	0.143	0.999
Model 2	JHU	<50m	zero/non-zero	-0.59	0.148	0.999
Model 2	UMN	<100m	ln CAC + 1	-0.361	0.149	0.999
Model 2	COL	<100m	CAC >75th %	-0.513	0.154	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	-0.564	0.157	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	-0.444	0.171	0.999
Model 2	WFU	<100m	CAC >75th %	-0.547	0.174	0.999
Model 2	UMN	<100m	CAC >75th %	-0.358	0.181	0.999
Model 2	UCLA	<100m	zero/non-zero	0.301	0.205	0.999
Model 2	JHU	<50m	ln CAC + 1	-0.453	0.22	0.999
Model 2	UCLA	<100m	CAC >75th %	-0.288	0.228	0.999
Model 2	COL	<50m	CAC >75th %	-0.354	0.244	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	0.361	0.26	0.999
Model 2	COL	<50m & >150m	CAC >75th %	-0.573	0.263	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	-0.524	0.274	0.999
Model 2	WFU	<50m	ln CAC + 1	-0.366	0.347	0.999
Model 2	UMN	<50m	CAC >75th %	-0.29	0.349	0.999
Model 2	UMN	<50m	ln CAC + 1	-0.267	0.362	0.999

Model 2	NWU	<50m & >150m	CAC >75th %	0.304	0.381	0.999
Model 2	WFU	<50m	CAC >75th %	-0.391	0.4	0.999
Model 2	UMN	<100m	zero/non-zero	-0.227	0.416	0.999
Model 2	UCLA	<100m	ln CAC + 1	0.147	0.488	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	0.204	0.504	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	0.152	0.557	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	-0.18	0.625	0.999
Model 2	NWU	<50m	zero/non-zero	0.125	0.648	0.999
Model 2	NWU	<50m	ln CAC + 1	0.095	0.679	0.999
Model 2	NWU	<50m	CAC >75th %	0.099	0.737	0.999
Model 2	NWU	<100m	zero/non-zero	-0.066	0.789	0.999
Model 2	UMN	<50m	zero/non-zero	-0.05	0.878	0.999
Model 2	NWU	<100m	ln CAC + 1	-0.029	0.889	0.999
Model 2	NWU	<100m	CAC >75th %	0.03	0.907	0.999

rs3741860 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	WFU	<100m	zero/non-zero	0.971	0.001	0.588
Model 1	WFU	<50m & >150m	zero/non-zero	0.978	0.003	0.994
Model 1	WFU	<50m	zero/non-zero	0.918	0.004	0.994
Model 1	WFU	<100m	ln CAC + 1	0.686	0.01	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	-0.733	0.016	0.994
Model 1	UCLA	<50m	zero/non-zero	-0.689	0.018	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.717	0.02	0.994
Model 1	COL	<50m	zero/non-zero	0.537	0.022	0.994
Model 1	WFU	<50m	ln CAC + 1	0.651	0.03	0.994
Model 1	UCLA	<50m	ln CAC + 1	-0.552	0.034	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	-0.559	0.036	0.994
Model 1	COL	<50m	ln CAC + 1	0.359	0.076	0.994
Model 1	UCLA	<100m	zero/non-zero	-0.381	0.103	0.994
Model 1	COL	<100m	zero/non-zero	0.447	0.104	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	0.505	0.108	0.994
Model 1	UMN	<100m	CAC >75th %	0.383	0.114	0.994
Model 1	UCLA	<50m	CAC >75th %	-0.472	0.114	0.994
Model 1	WFU	<100m	CAC >75th %	0.468	0.115	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	-0.477	0.128	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.534	0.132	0.994
Model 1	COL	<100m	ln CAC + 1	0.342	0.136	0.994
Model 1	COL	<100m	CAC >75th %	0.391	0.168	0.994
Model 1	WFU	<50m	CAC >75th %	0.478	0.168	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	0.438	0.171	0.994
Model 1	UCLA	<100m	ln CAC + 1	-0.282	0.183	0.994
Model 1	UMN	<100m	ln CAC + 1	0.306	0.188	0.994
Model 1	COL	<50m	CAC >75th %	0.315	0.202	0.994
Model 1	UMN	<50m	CAC >75th %	0.345	0.223	0.994
Model 1	COL	<50m & >150m	CAC >75th %	0.473	0.228	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	0.343	0.254	0.994
Model 1	COL	<50m & >150m	zero/non-zero	0.422	0.256	0.994
Model 1	UMN	<100m	zero/non-zero	0.28	0.265	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	-0.298	0.336	0.994
Model 1	UMN	<50m	ln CAC + 1	0.252	0.36	0.994
Model 1	NWU	<100m	zero/non-zero	0.168	0.444	0.994
Model 1	JHU	<100m	zero/non-zero	0.207	0.467	0.994
Model 1	JHU	<50m	CAC >75th %	0.225	0.475	0.994
Model 1	NWU	<50m	CAC >75th %	-0.185	0.49	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	0.225	0.492	0.994
Model 1	JHU	<100m	CAC >75th %	0.184	0.499	0.994
Model 1	JHU	<100m	ln CAC + 1	0.172	0.511	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	0.165	0.593	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	-0.083	0.725	0.994
Model 1	NWU	<50m	zero/non-zero	0.085	0.728	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	0.114	0.73	0.994

Model 1	UCLA	<100m	CAC >75th %	0.081	0.73	0.994
Model 1	NWU	<50m	ln CAC + 1	-0.063	0.766	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	0.093	0.781	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	0.07	0.793	0.994
Model 1	NWU	<100m	ln CAC + 1	0.047	0.803	0.994
Model 1	JHU	<50m	ln CAC + 1	0.068	0.822	0.994
Model 1	UMN	<50m	zero/non-zero	0.044	0.881	0.994
Model 1	NWU	<100m	CAC >75th %	-0.016	0.945	0.994
Model 1	JHU	<50m	zero/non-zero	0.014	0.965	0.994
Model 2	WFU	<100m	zero/non-zero	0.917	0.003	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	0.9	0.012	0.999
Model 2	WFU	<50m	zero/non-zero	0.85	0.015	0.999
Model 2	UCLA	<50m	zero/non-zero	-0.742	0.015	0.999
Model 2	COL	<50m	zero/non-zero	0.566	0.02	0.999
Model 2	UCLA	<50m	ln CAC + 1	-0.602	0.023	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	-0.718	0.026	0.999
Model 2	WFU	<100m	ln CAC + 1	0.571	0.042	0.999
Model 2	COL	<50m	ln CAC + 1	0.418	0.042	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	-0.556	0.043	0.999
Model 2	COL	<100m	CAC >75th %	0.554	0.061	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.588	0.065	0.999
Model 2	COL	<100m	zero/non-zero	0.517	0.069	0.999
Model 2	COL	<100m	ln CAC + 1	0.403	0.082	0.999
Model 2	COL	<50m	CAC >75th %	0.442	0.084	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	0.548	0.093	0.999
Model 2	UCLA	<100m	zero/non-zero	-0.406	0.095	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	0.585	0.097	0.999
Model 2	WFU	<50m	ln CAC + 1	0.502	0.106	0.999
Model 2	COL	<50m & >150m	CAC >75th %	0.667	0.107	0.999
Model 2	UCLA	<50m	CAC >75th %	-0.477	0.122	0.999
Model 2	WFU	<100m	CAC >75th %	0.479	0.141	0.999
Model 2	UMN	<100m	ln CAC + 1	0.363	0.144	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	-0.453	0.166	0.999
Model 2	UMN	<100m	CAC >75th %	0.369	0.167	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.447	0.167	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	0.495	0.188	0.999
Model 2	COL	<50m & >150m	zero/non-zero	0.514	0.189	0.999
Model 2	UCLA	<100m	ln CAC + 1	-0.276	0.202	0.999
Model 2	JHU	<100m	zero/non-zero	0.382	0.219	0.999
Model 2	JHU	<100m	CAC >75th %	0.343	0.25	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	0.387	0.276	0.999
Model 2	JHU	<100m	ln CAC + 1	0.289	0.298	0.999
Model 2	UMN	<50m	CAC >75th %	0.322	0.3	0.999
Model 2	WFU	<50m	CAC >75th %	0.379	0.301	0.999
Model 2	JHU	<50m	CAC >75th %	0.347	0.312	0.999
Model 2	UMN	<50m	ln CAC + 1	0.281	0.337	0.999
Model 2	UMN	<100m	zero/non-zero	0.245	0.376	0.999
Model 2	NWU	<100m	zero/non-zero	0.179	0.446	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	0.238	0.466	0.999

Model 2	JHU	<50m & >150m	zero/non-zero	0.242	0.509	0.999
Model 2	UCLA	<100m	CAC >75th %	0.128	0.6	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	-0.14	0.67	0.999
Model 2	NWU	<100m	ln CAC + 1	0.077	0.696	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	0.136	0.711	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	0.106	0.714	0.999
Model 2	JHU	<50m	ln CAC + 1	0.109	0.734	0.999
Model 2	NWU	<50m	zero/non-zero	0.075	0.772	0.999
Model 2	JHU	<50m	zero/non-zero	0.092	0.795	0.999
Model 2	NWU	<100m	CAC >75th %	0.052	0.833	0.999
Model 2	NWU	<50m	CAC >75th %	-0.058	0.834	0.999
Model 2	UMN	<50m	zero/non-zero	0.034	0.918	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	0.019	0.94	0.999
Model 2	NWU	<50m	ln CAC + 1	0	0.999	0.999

rs3912640 Interaction by Exposure, Outcome and Site, Arranged by Q-Value

Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	COL	<50m	ln CAC + 1	0.911	0.008	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	1.661	0.01	0.994
Model 1	JHU	<50m	CAC >75th %	1.619	0.011	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	1.56	0.017	0.994
Model 1	JHU	<50m	ln CAC + 1	1.495	0.02	0.994
Model 1	UCLA	<50m	zero/non-zero	-0.855	0.021	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	-0.885	0.021	0.994
Model 1	UCLA	<100m	zero/non-zero	-0.667	0.023	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	0.873	0.028	0.994
Model 1	UMN	<100m	CAC >75th %	0.617	0.035	0.994
Model 1	COL	<50m	zero/non-zero	0.764	0.057	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	1.187	0.059	0.994
Model 1	UMN	<100m	ln CAC + 1	0.515	0.065	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	0.99	0.087	0.994
Model 1	UMN	<100m	zero/non-zero	0.51	0.09	0.994
Model 1	WFU	<50m	zero/non-zero	0.946	0.098	0.994
Model 1	UCLA	<100m	ln CAC + 1	-0.438	0.099	0.994
Model 1	UMN	<50m	CAC >75th %	0.572	0.102	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.875	0.104	0.994
Model 1	WFU	<50m	CAC >75th %	0.862	0.114	0.994
Model 1	JHU	<100m	ln CAC + 1	0.786	0.118	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.873	0.118	0.994
Model 1	COL	<50m & >150m	zero/non-zero	1.144	0.123	0.994
Model 1	WFU	<50m	ln CAC + 1	0.808	0.125	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	0.564	0.132	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	0.589	0.152	0.994
Model 1	COL	<100m	ln CAC + 1	0.569	0.165	0.994
Model 1	NWU	<100m	CAC >75th %	-0.418	0.175	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	1.003	0.176	0.994
Model 1	NWU	<50m	ln CAC + 1	-0.363	0.199	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	-0.393	0.201	0.994
Model 1	WFU	<100m	zero/non-zero	0.633	0.205	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	-0.497	0.206	0.994
Model 1	COL	<100m	zero/non-zero	0.606	0.23	0.994
Model 1	JHU	<50m	zero/non-zero	0.869	0.232	0.994
Model 1	UCLA	<50m	ln CAC + 1	-0.38	0.246	0.994
Model 1	UMN	<50m	zero/non-zero	0.428	0.248	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	-0.394	0.272	0.994
Model 1	JHU	<100m	CAC >75th %	0.516	0.306	0.994
Model 1	NWU	<50m	CAC >75th %	-0.353	0.322	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	-0.314	0.351	0.994
Model 1	UMN	<50m	ln CAC + 1	0.306	0.377	0.994
Model 1	COL	<50m & >150m	CAC >75th %	0.67	0.389	0.994
Model 1	NWU	<50m	zero/non-zero	-0.285	0.395	0.994
Model 1	JHU	<100m	zero/non-zero	0.487	0.399	0.994

Model 1	UCLA	<50m	CAC >75th %	-0.315	0.409	0.994
Model 1	WFU	<100m	CAC >75th %	0.381	0.436	0.994
Model 1	COL	<100m	CAC >75th %	0.391	0.454	0.994
Model 1	NWU	<100m	ln CAC + 1	-0.188	0.458	0.994
Model 1	WFU	<100m	ln CAC + 1	0.347	0.464	0.994
Model 1	COL	<50m	CAC >75th %	0.272	0.516	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	-0.24	0.547	0.994
Model 1	NWU	<100m	zero/non-zero	-0.154	0.607	0.994
Model 1	UCLA	<100m	CAC >75th %	0.066	0.826	0.994
Model 2	JHU	<50m	CAC >75th %	1.786	0.013	0.999
Model 2	COL	<50m	ln CAC + 1	0.888	0.013	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	1.08	0.014	0.999
Model 2	UCLA	<50m	zero/non-zero	-0.864	0.024	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	1.663	0.025	0.999
Model 2	UCLA	<100m	zero/non-zero	-0.676	0.027	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	1.543	0.034	0.999
Model 2	JHU	<50m	ln CAC + 1	1.492	0.038	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	-0.834	0.039	0.999
Model 2	UMN	<100m	CAC >75th %	0.652	0.042	0.999
Model 2	UMN	<50m	CAC >75th %	0.733	0.055	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	1.115	0.064	0.999
Model 2	WFU	<50m	CAC >75th %	1.074	0.066	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	1.01	0.069	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	1.157	0.072	0.999
Model 2	UCLA	<100m	ln CAC + 1	-0.479	0.076	0.999
Model 2	WFU	<50m	zero/non-zero	1.108	0.082	0.999
Model 2	WFU	<50m	ln CAC + 1	0.944	0.082	0.999
Model 2	UMN	<100m	ln CAC + 1	0.494	0.095	0.999
Model 2	COL	<100m	ln CAC + 1	0.698	0.096	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	1.056	0.096	0.999
Model 2	COL	<50m	zero/non-zero	0.669	0.107	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.633	0.111	0.999
Model 2	JHU	<100m	ln CAC + 1	0.795	0.145	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	1.132	0.155	0.999
Model 2	JHU	<50m	zero/non-zero	1.058	0.175	0.999
Model 2	UCLA	<50m	ln CAC + 1	-0.447	0.179	0.999
Model 2	COL	<100m	zero/non-zero	0.695	0.183	0.999
Model 2	COL	<50m & >150m	zero/non-zero	0.966	0.202	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	0.577	0.205	0.999
Model 2	UMN	<100m	zero/non-zero	0.399	0.225	0.999
Model 2	WFU	<100m	zero/non-zero	0.657	0.246	0.999
Model 2	JHU	<100m	CAC >75th %	0.656	0.248	0.999
Model 2	UMN	<50m	zero/non-zero	0.468	0.249	0.999
Model 2	UMN	<50m	ln CAC + 1	0.412	0.256	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	-0.466	0.261	0.999
Model 2	NWU	<100m	CAC >75th %	-0.36	0.264	0.999
Model 2	JHU	<100m	zero/non-zero	0.687	0.28	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	-0.399	0.292	0.999
Model 2	COL	<100m	CAC >75th %	0.573	0.307	0.999

Model 2	NWU	<50m	ln CAC + 1	-0.283	0.33	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	-0.335	0.331	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	-0.3	0.345	0.999
Model 2	UCLA	<50m	CAC >75th %	-0.358	0.371	0.999
Model 2	WFU	<100m	CAC >75th %	0.464	0.388	0.999
Model 2	NWU	<50m	zero/non-zero	-0.265	0.454	0.999
Model 2	NWU	<50m	CAC >75th %	-0.273	0.457	0.999
Model 2	COL	<50m & >150m	CAC >75th %	0.54	0.5	0.999
Model 2	WFU	<100m	ln CAC + 1	0.329	0.512	0.999
Model 2	COL	<50m	CAC >75th %	0.265	0.542	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	-0.256	0.545	0.999
Model 2	NWU	<100m	ln CAC + 1	-0.121	0.641	0.999
Model 2	NWU	<100m	zero/non-zero	-0.121	0.703	0.999
Model 2	UCLA	<100m	CAC >75th %	0.084	0.789	0.999

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Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 1	UMN	<50m & >150m	zero/non-zero	1.716	0.023	0.994
Model 1	UMN	<100m	zero/non-zero	1.155	0.038	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	0.532	0.057	0.994
Model 1	WFU	<100m	ln CAC + 1	0.4	0.103	0.994
Model 1	UMN	<50m	zero/non-zero	1.109	0.107	0.994
Model 1	WFU	<50m	ln CAC + 1	0.41	0.13	0.994
Model 1	UMN	<100m	ln CAC + 1	0.687	0.157	0.994
Model 1	JHU	<100m	zero/non-zero	0.36	0.167	0.994
Model 1	WFU	<100m	CAC >75th %	0.386	0.169	0.994
Model 1	WFU	<50m & >150m	zero/non-zero	0.382	0.2	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	0.391	0.205	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	-0.424	0.219	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	-0.349	0.242	0.994
Model 1	NWU	<50m	ln CAC + 1	-0.307	0.253	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	0.727	0.258	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.373	0.26	0.994
Model 1	JHU	<50m	zero/non-zero	0.333	0.267	0.994
Model 1	UMN	<100m	CAC >75th %	0.698	0.27	0.994
Model 1	COL	<50m & >150m	zero/non-zero	0.398	0.277	0.994
Model 1	NWU	<100m	ln CAC + 1	-0.256	0.284	0.994
Model 1	NWU	<50m	zero/non-zero	-0.315	0.311	0.994
Model 1	WFU	<50m	zero/non-zero	0.289	0.321	0.994
Model 1	COL	<100m	zero/non-zero	0.262	0.341	0.994
Model 1	JHU	<50m	CAC >75th %	0.245	0.394	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	0.657	0.395	0.994
Model 1	COL	<50m	CAC >75th %	-0.206	0.401	0.994
Model 1	WFU	<100m	zero/non-zero	0.213	0.408	0.994
Model 1	NWU	<100m	zero/non-zero	-0.218	0.434	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	0.216	0.47	0.994
Model 1	WFU	<50m	CAC >75th %	0.226	0.485	0.994
Model 1	UMN	<50m	CAC >75th %	0.444	0.542	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	0.279	0.584	0.994
Model 1	JHU	<100m	CAC >75th %	0.134	0.588	0.994
Model 1	UMN	<50m	ln CAC + 1	0.283	0.639	0.994
Model 1	COL	<50m	zero/non-zero	0.1	0.669	0.994
Model 1	JHU	<100m	ln CAC + 1	0.098	0.679	0.994
Model 1	UCLA	<100m	CAC >75th %	0.16	0.682	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	0.114	0.723	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	0.095	0.734	0.994
Model 1	NWU	<100m	CAC >75th %	-0.092	0.749	0.994
Model 1	UCLA	<50m	ln CAC + 1	0.158	0.752	0.994
Model 1	JHU	<50m	ln CAC + 1	0.086	0.753	0.994
Model 1	COL	<50m	ln CAC + 1	0.062	0.755	0.994
Model 1	COL	<100m	ln CAC + 1	0.057	0.807	0.994
Model 1	UCLA	<50m	zero/non-zero	-0.136	0.808	0.994

Model 1	UCLA	<50m & >150m	CAC >75th %	0.132	0.815	0.994
Model 1	UCLA	<100m	zero/non-zero	0.086	0.816	0.994
Model 1	UCLA	<50m	CAC >75th %	-0.092	0.865	0.994
Model 1	COL	<50m & >150m	CAC >75th %	-0.061	0.873	0.994
Model 1	NWU	<50m	CAC >75th %	-0.049	0.881	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	-0.05	0.894	0.994
Model 1	UCLA	<100m	ln CAC + 1	0.037	0.913	0.994
Model 1	COL	<100m	CAC >75th %	-0.023	0.935	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	0.028	0.962	0.994
Model 2	UMN	<50m & >150m	zero/non-zero	1.738	0.029	0.999
Model 2	UMN	<100m	zero/non-zero	1.072	0.066	0.999
Model 2	UMN	<50m	zero/non-zero	1.037	0.153	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	-0.518	0.168	0.999
Model 2	UMN	<100m	ln CAC + 1	0.663	0.186	0.999
Model 2	WFU	<100m	ln CAC + 1	0.332	0.222	0.999
Model 2	JHU	<50m	zero/non-zero	0.389	0.248	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	0.353	0.257	0.999
Model 2	COL	<50m & >150m	zero/non-zero	0.426	0.26	0.999
Model 2	NWU	<50m	zero/non-zero	-0.377	0.266	0.999
Model 2	JHU	<100m	zero/non-zero	0.322	0.266	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	0.373	0.28	0.999
Model 2	NWU	<100m	ln CAC + 1	-0.265	0.291	0.999
Model 2	COL	<100m	zero/non-zero	0.281	0.317	0.999
Model 2	JHU	<50m	CAC >75th %	0.317	0.32	0.999
Model 2	NWU	<100m	zero/non-zero	-0.292	0.333	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	0.639	0.337	0.999
Model 2	COL	<50m	CAC >75th %	-0.236	0.356	0.999
Model 2	WFU	<100m	CAC >75th %	0.297	0.362	0.999
Model 2	NWU	<50m	ln CAC + 1	-0.26	0.365	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	-0.275	0.387	0.999
Model 2	WFU	<50m	ln CAC + 1	0.258	0.393	0.999
Model 2	UMN	<100m	CAC >75th %	0.528	0.422	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	0.251	0.466	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	0.586	0.469	0.999
Model 2	COL	<50m	zero/non-zero	0.17	0.485	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	0.23	0.487	0.999
Model 2	WFU	<100m	zero/non-zero	0.205	0.494	0.999
Model 2	UCLA	<100m	zero/non-zero	0.234	0.539	0.999
Model 2	UCLA	<100m	CAC >75th %	0.234	0.552	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	0.29	0.572	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	0.209	0.615	0.999
Model 2	COL	<50m	ln CAC + 1	0.1	0.624	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	0.184	0.626	0.999
Model 2	WFU	<50m	zero/non-zero	0.158	0.642	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	0.133	0.688	0.999
Model 2	JHU	<100m	CAC >75th %	0.109	0.69	0.999
Model 2	UCLA	<100m	ln CAC + 1	0.128	0.704	0.999
Model 2	COL	<50m & >150m	CAC >75th %	-0.144	0.721	0.999
Model 2	COL	<100m	CAC >75th %	-0.098	0.738	0.999

Model 2	NWU	<50m	CAC >75th %	0.118	0.74	0.999
Model 2	COL	<100m	ln CAC + 1	0.077	0.748	0.999
Model 2	UMN	<50m	CAC >75th %	0.24	0.752	0.999
Model 2	UMN	<50m	ln CAC + 1	0.194	0.754	0.999
Model 2	UCLA	<50m	ln CAC + 1	0.144	0.773	0.999
Model 2	WFU	<50m	CAC >75th %	0.088	0.81	0.999
Model 2	JHU	<50m	ln CAC + 1	0.068	0.818	0.999
Model 2	UCLA	<50m	zero/non-zero	-0.128	0.824	0.999
Model 2	UCLA	<50m	CAC >75th %	-0.12	0.827	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	0.107	0.855	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	0.049	0.873	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	0.03	0.961	0.999
Model 2	NWU	<100m	CAC >75th %	0.01	0.974	0.999
Model 2	JHU	<100m	ln CAC + 1	0.006	0.981	0.999

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Model	Site	Exposure	Outcome	Coefficient	P-Value	Q-Value
Model 2	JHU	<100m	ln CAC + 1	-0.862	0.001	0.588
Model 1	JHU	<100m	ln CAC + 1	-0.671	0.007	0.994
Model 1	JHU	<100m	zero/non-zero	-0.669	0.017	0.994
Model 1	JHU	<50m & >150m	ln CAC + 1	-0.699	0.019	0.994
Model 1	UCLA	<50m	ln CAC + 1	0.551	0.033	0.994
Model 1	JHU	<50m & >150m	zero/non-zero	-0.698	0.037	0.994
Model 1	UCLA	<50m & >150m	zero/non-zero	0.632	0.037	0.994
Model 1	UCLA	<50m & >150m	ln CAC + 1	0.552	0.037	0.994
Model 1	JHU	<50m	ln CAC + 1	-0.586	0.045	0.994
Model 1	UCLA	<50m	zero/non-zero	0.576	0.046	0.994
Model 1	JHU	<100m	CAC >75th %	-0.488	0.062	0.994
Model 1	JHU	<50m	zero/non-zero	-0.604	0.063	0.994
Model 1	JHU	<50m & >150m	CAC >75th %	-0.591	0.066	0.994
Model 1	JHU	<50m	CAC >75th %	-0.509	0.102	0.994
Model 1	UCLA	<50m & >150m	CAC >75th %	0.463	0.128	0.994
Model 1	UCLA	<50m	CAC >75th %	0.439	0.129	0.994
Model 1	UMN	<100m	CAC >75th %	-0.348	0.143	0.994
Model 1	UCLA	<100m	zero/non-zero	0.338	0.15	0.994
Model 1	UMN	<100m	ln CAC + 1	-0.319	0.153	0.994
Model 1	NWU	<100m	zero/non-zero	-0.309	0.163	0.994
Model 1	UMN	<50m & >150m	ln CAC + 1	-0.392	0.18	0.994
Model 1	UMN	<50m	ln CAC + 1	-0.328	0.221	0.994
Model 1	UMN	<50m & >150m	CAC >75th %	-0.381	0.222	0.994
Model 1	UCLA	<100m	ln CAC + 1	0.255	0.234	0.994
Model 1	COL	<100m	ln CAC + 1	-0.256	0.251	0.994
Model 1	NWU	<100m	ln CAC + 1	-0.219	0.252	0.994
Model 1	UMN	<50m	CAC >75th %	-0.273	0.334	0.994
Model 1	NWU	<100m	CAC >75th %	-0.19	0.428	0.994
Model 1	COL	<100m	zero/non-zero	-0.176	0.499	0.994
Model 1	WFU	<100m	zero/non-zero	-0.154	0.533	0.994
Model 1	COL	<50m	zero/non-zero	-0.131	0.562	0.994
Model 1	COL	<50m & >150m	CAC >75th %	0.202	0.58	0.994
Model 1	NWU	<50m & >150m	CAC >75th %	0.159	0.612	0.994
Model 1	NWU	<50m	CAC >75th %	0.131	0.622	0.994
Model 1	COL	<50m	ln CAC + 1	-0.093	0.64	0.994
Model 1	COL	<50m	CAC >75th %	-0.102	0.667	0.994
Model 1	WFU	<100m	CAC >75th %	0.105	0.692	0.994
Model 1	COL	<100m	CAC >75th %	-0.099	0.708	0.994
Model 1	NWU	<50m	ln CAC + 1	0.075	0.721	0.994
Model 1	UMN	<100m	zero/non-zero	-0.082	0.735	0.994
Model 1	NWU	<50m & >150m	ln CAC + 1	0.081	0.74	0.994
Model 1	WFU	<50m	CAC >75th %	0.092	0.767	0.994
Model 1	UMN	<50m	zero/non-zero	-0.082	0.779	0.994
Model 1	WFU	<100m	ln CAC + 1	-0.066	0.784	0.994
Model 1	WFU	<50m & >150m	ln CAC + 1	-0.059	0.829	0.994

Model 1	WFU	<50m & >150m	zero/non-zero	-0.06	0.833	0.994
Model 1	NWU	<50m & >150m	zero/non-zero	0.057	0.837	0.994
Model 1	NWU	<50m	zero/non-zero	0.043	0.857	0.994
Model 1	UCLA	<100m	CAC >75th %	-0.042	0.861	0.994
Model 1	WFU	<50m & >150m	CAC >75th %	0.055	0.863	0.994
Model 1	COL	<50m & >150m	ln CAC + 1	-0.051	0.866	0.994
Model 1	WFU	<50m	zero/non-zero	-0.04	0.887	0.994
Model 1	COL	<50m & >150m	zero/non-zero	0.032	0.926	0.994
Model 1	WFU	<50m	ln CAC + 1	0.021	0.936	0.994
Model 1	UMN	<50m & >150m	zero/non-zero	-0.003	0.993	0.994
Model 2	JHU	<100m	CAC > 75th %	-0.874	0.003	0.999
Model 2	JHU	<100m	zero/non-zero	-0.87	0.005	0.999
Model 2	JHU	<50m & >150m	CAC >75th %	-0.931	0.01	0.999
Model 2	JHU	<50m	CAC >75th %	-0.892	0.011	0.999
Model 2	JHU	<50m & >150m	ln CAC + 1	-0.766	0.017	0.999
Model 2	UCLA	<50m	ln CAC + 1	0.618	0.018	0.999
Model 2	JHU	<50m	ln CAC + 1	-0.684	0.03	0.999
Model 2	UCLA	<50m & >150m	ln CAC + 1	0.579	0.033	0.999
Model 2	UCLA	<50m	zero/non-zero	0.625	0.037	0.999
Model 2	UCLA	<50m & >150m	zero/non-zero	0.63	0.048	0.999
Model 2	JHU	<50m & >150m	zero/non-zero	-0.701	0.055	0.999
Model 2	JHU	<50m	zero/non-zero	-0.624	0.08	0.999
Model 2	NWU	<100m	zero/non-zero	-0.395	0.094	0.999
Model 2	UCLA	<100m	zero/non-zero	0.381	0.117	0.999
Model 2	UCLA	<50m	CAC >75th %	0.445	0.138	0.999
Model 2	UCLA	<50m & >150m	CAC >75th %	0.446	0.16	0.999
Model 2	NWU	<100m	ln CAC + 1	-0.277	0.16	0.999
Model 2	UCLA	<100m	ln CAC + 1	0.266	0.221	0.999
Model 2	UMN	<50m & >150m	ln CAC + 1	-0.386	0.222	0.999
Model 2	UMN	<50m	ln CAC + 1	-0.342	0.231	0.999
Model 2	UMN	<100m	ln CAC + 1	-0.277	0.246	0.999
Model 2	UMN	<50m & >150m	CAC >75th %	-0.388	0.264	0.999
Model 2	UMN	<100m	CAC >75th %	-0.273	0.295	0.999
Model 2	NWU	<100m	CAC >75th %	-0.247	0.327	0.999
Model 2	COL	<100m	ln CAC + 1	-0.209	0.361	0.999
Model 2	UMN	<50m	CAC >75th %	-0.263	0.397	0.999
Model 2	WFU	<50m & >150m	ln CAC + 1	-0.177	0.541	0.999
Model 2	COL	<100m	CAC >75th %	-0.15	0.59	0.999
Model 2	COL	<50m	CAC >75th %	-0.132	0.595	0.999
Model 2	NWU	<50m	CAC >75th %	0.142	0.611	0.999
Model 2	COL	<100m	zero/non-zero	-0.123	0.648	0.999
Model 2	WFU	<100m	CAC >75th %	0.123	0.683	0.999
Model 2	NWU	<50m & >150m	CAC >75th %	0.136	0.684	0.999
Model 2	UMN	<50m & >150m	zero/non-zero	0.13	0.717	0.999
Model 2	WFU	<50m & >150m	zero/non-zero	-0.113	0.723	0.999
Model 2	COL	<50m & >150m	CAC >75th %	0.135	0.729	0.999
Model 2	UCLA	<100m	CAC >75th %	-0.084	0.732	0.999
Model 2	WFU	<50m	ln CAC + 1	-0.079	0.779	0.999
Model 2	UMN	<100m	zero/non-zero	0.058	0.827	0.999

Model 2	COL	<50m	zero/non-zero	-0.051	0.828	0.999
Model 2	COL	<50m	ln CAC + 1	-0.044	0.83	0.999
Model 2	WFU	<50m	zero/non-zero	-0.065	0.835	0.999
Model 2	WFU	<100m	zero/non-zero	-0.053	0.851	0.999
Model 2	NWU	<50m	ln CAC + 1	0.04	0.854	0.999
Model 2	WFU	<100m	ln CAC + 1	-0.045	0.862	0.999
Model 2	COL	<50m & >150m	ln CAC + 1	-0.049	0.875	0.999
Model 2	COL	<50m & >150m	zero/non-zero	0.046	0.9	0.999
Model 2	NWU	<50m & >150m	ln CAC + 1	0.029	0.907	0.999
Model 2	UMN	<50m	zero/non-zero	-0.035	0.913	0.999
Model 2	WFU	<50m & >150m	CAC >75th %	-0.038	0.914	0.999
Model 2	WFU	<50m	CAC >75th %	0.025	0.942	0.999
Model 2	NWU	<50m	zero/non-zero	0.017	0.947	0.999
Model 2	NWU	<50m & >150m	zero/non-zero	0.013	0.965	0.999