



CALL FOR APPLICATIONS 2014

Summary of Changes for 2014

The content of the 2014 TRDRP Call for Applications remains largely unchanged from the previous year except for key changes to the deadlines and several added requirements. Award mechanisms as well as direct cost caps remain the same, as do the research priorities. Nonetheless, we strongly encourage you to review this document carefully before submitting an application. It is important to familiarize yourself with the program’s research priorities and ensure that your application adheres to the intent of the specific award mechanism. For example, Research Project Award applications must be fully developed, scientifically rigorous and include substantial as well as promising preliminary data rather than being primarily exploratory in nature. The latter type projects should be submitted as Exploratory/Developmental Award applications.

- **Changes to Deadlines**

The deadlines for submission of Letters of Intent (LOI) and applications have changed. All applications, with the exception of training awards (Postdoctoral and Dissertation Awards) are due and will be awarded later in the year. All training award applications are due and will be awarded earlier than this previous year. The following table lists important dates and deadlines:

	Postdoctoral and Dissertation Awards	CARA/SARA Awards	All Other Awards*
Application Materials Available	September 5, 2013	December 2, 2013	December 2, 2013
Brief Pre-Proposals Due	Not Applicable	Monday, January 13, 2014	Not Applicable
Applicant Training Workshop	Not Applicable	February 13, 2014	Not Applicable
Letter of Intent Due (Required)	October 15, 2013	February 13, 2014	February 13, 2014
Full Application Due	December 17, 2013	April 21, 2014	April 21, 2014
Funding Notification	May, 2014	September, 2014	September, 2014
Award Start Date	August 1, 2014	December 1, 2014	December 1, 2014

* Except Conference Support and Cornelius Hopper Diversity Supplement Awards

Grant Budget Changes

- All Postdoctoral Fellowship and Dissertation Research Awards are now entitled to 8% F&A costs.

California Cancer Research Fund

- Funding from The California Cancer Research Fund will not be offered this year; it will be offered again in 2015 and every two years thereafter.

Research Priorities

- Applicants under this Call who plan to pursue research on thirdhand smoke are encouraged to design a plan that will benefit from the existing TRDRP-funded Thirdhand Smoke Consortium (see Research Priority 1).
- Applicants interested in early detection of tobacco-related diseases are encouraged to utilize new information, molecular data, and other resources available from NIH-funded efforts such as the Cancer Genome Atlas (TCGA) and the Early Detection Research Network (see Research Priority 2).
- TRDRP strongly encourages more research on youth tobacco product use especially e-cigarettes and e-hookahs, either as part of or external to K-12 school settings (see Research Priority 4).
- The California Department of Education's research priorities for the School-Academic Research Awards have been updated (see Research Priority 4).

New Requirements for Pilot and Full SARA Applicants

- SARA applicants are now required to submit at least one letter of support from a local school district or the California Department of Education (CDE).

Training in Community/ School Based Participatory Research for CARA/SARA Applicants

- TRDRP will hold a one-day training for community/school and academic research partners planning to submit a CARA or SARA application in 2014.

Training is recommended, but not required to submit an application and is scheduled for February 13, 2014. Read below under the CARA/SARA mechanism.

Re-submission Policy

- Beginning with new original applications that were submitted January 2012 TRDRP, will accept only a single re-submission of the same or very similar project, regardless of change in application title. Under extraordinary circumstances a second re-submission *may* be allowed at the discretion of the program.

CONTENTS

Purpose
Background
Priority Research Objectives
Mechanisms of Support
Review Criteria Applied to all Research Award Mechanisms
Special Projects – Conference Support
Cornelius Hopper Diversity Award Supplement
Eligibility
Submission
Key Dates
Contact Information

PURPOSE

The purpose of this TRDRP Call for Applications is to stimulate research on tobacco control and tobacco-related disease that is of highest priority and potential benefit to the State of California and the nation as a whole. The program anticipates that this will be achieved by supporting research that will inform and strengthen tobacco control efforts at the local, state and national levels; lead to the early detection and secondary prevention of tobacco-related diseases; and advance the prevention and cessation of nicotine and tobacco products, particularly among the most heavily affected of California's diverse populations.

BACKGROUND

From Tobacco to Nicotine

The science and practice of tobacco control is a dynamic, rapidly evolving, and radically different field from that of just a few years ago. Last year we trumpeted the announcement by [Philip Morris International at its shareholder meeting June of 2012 that they planned to introduce a low-risk cigarette by 2017](#). The industry is evolving so rapidly that neither Altria nor Reynolds could delay until 2017; both launched their own e-cigarette products, Mark Ten and Vuse Solo, respectively, this year. Louis Camilleri, PMI's Chief Executive Officer words of last year are even

more prophetic: “We are on the eve of what we all believe could be a paradigm shift for our industry, [these new products have] “the very real potential to not only be a game-changer, but also be the key to unlock several hitherto virgin territories, most notably the huge Chinese market.” Indeed, tobacco may be an artifact of the 20th century; nicotine addiction in the 21st century will increasingly be through a host of new products, including orbs, sticks, lozenges, inhalers and e-cigarettes. Indeed, some securities analysts are predicting that e-cigarettes will surpass conventional cigarettes by 2023¹.

The Affordable Care Act

Another new development affecting the field is the implementation of the Affordable Care Act (ACA). [The ACA new rules on preventative care](#) will add over 30 million new people to the health care rolls and will support providing counseling and smoking cessation services to most. However, people on Medicaid who are not pregnant are not guaranteed coverage of cessation treatments. Hence, it will fall to the States to guarantee this potential benefit. What will California do; will the ACA actually expand cessation services; will the ACA save Californian lives and health care cost? These questions among others are new and important research questions that we are confronting in the new tobacco control landscape.

The FDA

The Food and Drug Administration’s (FDA) authority to regulate tobacco products, while not new, is just a few years old and it (the FDA) is still determining its limits and extent of its authority. Following the [TPSAC Menthol Report](#), the FDA has spent the past year doing its own investigation of menthol; one might argue that no other substance has been scrutinized so widely. But, as the issue of menthol languishes, the FDA is taking the first tentative steps to regulate cigars, including small cigars and cigarillos. This latter move could have a tremendous impact on urban inner city youth of color, many of whom use small cigars. Menthol is only one of the thorny issues on the FDA’s plate. The regulation of e-cigarettes, the establishment of graphic warning labels and the regulation of harm reduction products are all major issues confronting the FDA; research is sorely needed in all these areas.

Tobacco Industry Influence

One thing that hasn’t changed in the tobacco control and tobacco research landscape is the influence of the tobacco industry. The industry has been successful in blocking the placement of graphic warning labels on cigarette

¹ Herzog B. Vape’em if you got ‘em. The Economist, March 23rd, 2013

packages. And most ominous, the industry's influence over trans-Pacific and trans-Atlantic trade agreements does not bode well for domestic tobacco control. The sting from the defeat of Proposition 29, which would have raised taxes on tobacco products by \$1 dollar is still palpable. The tobacco industry invested over \$50 million dollars into the defeat of Proposition 29, the [California Cancer Research Act](#), in an attempt to ensure that California remains the largest consumer of tobacco products in the United States. Since 1988, California has dropped from 1st to 33rd in the U.S. in tobacco taxes per pack and ranks only 23rd in tobacco prevention spending.² As a result, key tobacco control indicators foreshadow significant slippage in both health and economic benefits to the State.³ Tobacco interests continue to maintain a strong presence in California policymaking through spending millions of dollars on campaign contributions and lobbying expenditures.⁴ The industry also continues to recruit and retain smokers through price manipulation, artificially lowering the price of cigarettes and particularly targeting price-sensitive groups like youth and low-income individuals. Once the nation's leader in protecting workers from the toxic effects of secondhand smoke, California has fallen behind the national standard set by the Centers for Disease Control and Prevention (CDC). California is not considered a 100% smoke-free state by the CDC. Meanwhile, 24 other states and the District of Columbia provide greater secondhand smoke protection in the workplace than California.⁵ The current status of tobacco control within the State challenges TRDRP to focus its limited resources in areas that will result in the evidence to develop, implement, and enforce the public policies and programs necessary to halt and reverse such trends. It calls for an intensified effort across a range of scientific disciplines focused on informing a new generation of California public policies and tobacco control initiatives.

² Campaign for Tobacco Free Kids. *Key State-Specific Tobacco-Related Data & Rankings*. <http://www.tobaccofreekids.org/research/factsheets/pdf/0176.pdf>

³ Max, W., Sung, H., & Lightwood, J., *The Impact of Changes in California Tobacco Control Expenditures on Healthcare Expenditures, 2012 – 2016, Final Report to the Tobacco-Related Disease Research Program*. 2011.

Lightwood, J. & Glantz, S., *Predicted Effect of California Tobacco Control Educational Funding on Smoking Prevalence, Cigarette Consumption, and Healthcare Costs, 2012-2016. Final Report to the Tobacco-Related Disease Research Program, 2011*.

Pierce, J. et al. 2010. Forty years of faster decline in cigarette smoking in California explains current lower lung cancer rates. *Cancer, Epidemiology, Biomarkers, and Prevention* 19(11):2801-10.

⁴ California's Center for Tobacco Policy & Organizing. *Campaign Contributions and Lobbying of Tobacco Interests in California: January 2009-June 2010*. <http://www.center4tobaccopolicy.org/tobacomoney>

⁵ Centers for Disease Control and Prevention. *Press Release, New CDC Report Says Increased Efforts, High-Impact Strategies Needed to Reduce Smoking and Save Lives*. April 23, 2010. : <http://www.cdc.gov/media/pressrel/2010/r100423.htm>

Early Disease Diagnosis

As with the science and practice of tobacco control, the science of tobacco-related disease is also undergoing fundamental changes. Biomedical research has been and will continue to be a cornerstone of TRDRP's mission and portfolio. The program has recently shifted its focus to the early detection and secondary prevention of tobacco-related disease.

One example is lung cancer which, given its strong association with smoking and high mortality when diagnosed in its later stages, remains an area of particular interest to the TRDRP. Over 160,000 people in the US will die of lung cancer in 2012.⁶ Most are still diagnosed late in disease progression – as a result the current 5-year overall survival rate is only 16%.⁷ Computerized tomography (CT) screening offers hope for detecting lung cancer early enough to improve lung cancer prognosis at least in high-risk patients. After years of uncertainty and controversy the results are in: low-dose computerized tomography (CT) screening saves lives. A 20% reduction in mortality has been observed when smokers at high risk of lung cancer were diagnosed using CT as compared to those who underwent chest X-ray.⁸ Medical professionals now recommend that current or former smokers at high risk of lung cancer undergo routine CT screening. The American College of Chest Physicians, and the American Society of Clinical Oncology for example recommend that CT screening be offered to current and former smokers aged 55 to 74 who have smoked for 30 pack years or more and either are still smoking or have quit in the past 15 years. The American Association for Thoracic Surgery guidelines extend that age range to 79 years and furthermore recommend that long-term lung cancer survivors be screened to detect second primary lung cancer⁹

⁶ American Cancer Society. *Cancer Facts & Figures 2012*. Atlanta: American Cancer Society; 2012.

⁷ Howlader N. et al. (eds) *SEER Cancer Statistics Review, 1975-2009 (Vintage 2009 Populations)*, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2009_pops09/, based on November 2011 SEER data submission, posted to the SEER web site, 2012.

⁸ The National Lung Screening Trial Research Team. 2011. Reduced lung cancer mortality with low-dose computed tomographic screening. *N. Engl. J. Med.* 365: 395-409

⁹ Jacobson F.L. et al. 2012 Development of The American Association for Thoracic Surgery guidelines for low-dose computed tomography scans to screen for lung cancer in North America: Recommendations of The American Association for Thoracic Surgery Task Force for Lung Cancer Screening and Surveillance. *J Thorac Cardiovasc Surg.* 144:25-32.

while the National Comprehensive Cancer Network recommends screening starting at age 50 with no upper limit to the age range.¹⁰

These recommendations, while a tremendous diagnostic advance, beg the question of how to diagnose lung cancer in never smokers, those who stopped smoking more than 15 years prior to diagnosis or smokers who have not accumulated more than 30 pack years. Furthermore, as with any medical procedure, CT carries its own risks including a high probability of a false positive diagnosis which in turn may lead to unnecessary and potentially injurious follow-up.¹¹ Damage from repeated radiation exposure is also a concern. Given the risks associated with CT screening, a non-invasive test or imaging technology using molecular biomarkers to either selectively target those patients most at risk or to confirm CT screening results and reduce the number of false positives is one area of interest to the TRDRP.

Disproportionately Affected Populations

While significant advances in the science and practice of tobacco control have been evident over the past 20 years, it is also clear that certain populations, including the mentally ill, military personnel, specific ethnic and racial groups, lesbian, gay, bisexual, and transgender (LGBT) individuals, and those in the lowest socioeconomic strata, continue to bear a disproportionate burden of tobacco-related illness and death.^{12 13} California is composed of a sizable majority of these populations, including the largest “minority” population in the United States (57% of the state population) and an estimated 1,079,000 lesbian, gay, and bisexual individuals (2.96% of the population).¹⁴ Despite the significance of health disparities within tobacco control and tobacco-related disease, a greater understanding of societal, cultural and behavioral factors driving these differences is still needed.¹⁵ TRDRP is committed to prioritizing and supporting the scientific

¹⁰ NCCN Guidelines for Detection, Prevention, and Risk Reduction. Lung Cancer Screening - Version 1.2013 https://subscriptions.nccn.org/gi_login.aspx?ReturnURL=http://www.nccn.org/professionals/physician_gls/pdf/lung_screening.pdf

¹¹ Bach, P.B. et al., 2012. Benefits and harms of CT screening for lung cancer A Systematic Review . *JAMA* 307: 2418-2429.

¹² Fagan P. et al. Eliminating tobacco-related health disparities: directions for future research. *Am J Public Health* 2004; 94: 211–17.

¹³ Conway T.L. 1998 Tobacco use and the United States military: a longstanding problem. *Tobacco Control*, 7: 219 - 221.

¹⁴ Minority population growing in the United States, census estimates show. Los Angeles Times, June 20, 2010 Available at: <http://articles.latimes.com/2010/jun/10/nation/la-na-census-20100611>

¹⁵ Fagan P. et al. 2007 Identifying health disparities across the tobacco continuum. *Addiction* 102 (Suppl. 2), 5–29.

investigation needed to identify optimal strategies to address health inequities and to understand how to interrupt increasing disparities among certain populations. With this Call for Applications, TRDRP encourages a concerted effort by scientists, health professionals, policymakers, and community activists across the state towards eliminating tobacco-related health disparities.

PRIORITY RESEARCH OBJECTIVES

Our research priorities for 2014 are an elaboration and particularization of our first strategic goal, "to fund high priority areas of research." Consequently, all research applications submitted in response to this Call must be responsive to at least one of the following five research priorities:

Research Priority 1: Advance policies to reduce environmental exposure to the toxic effects of tobacco smoke, tobacco smoke residue, cigarette butts, and other tobacco products.

Cigarette Butt Pollution- Cigarettes and butts are the leading littered item on US roadways. 360 billion cigarettes were consumed in the US alone in 2007. Over 1 million cigarettes and filters, 16,000 lighters, 73,000 cigar tips and almost 37,000 tobacco packages or wrappers were removed from US waterways in 2010. Ingested cigarettes are poisonous to children and adults as well as animals and butt leachates are toxic to marine life. Over \$5.6 million is spent annually to clean up tobacco litter in San Francisco. The impact on the environment and the risks to human health of this material are unknown and largely unexplored.

For example, research is needed on:

- Exposure and toxicity of cigarette butt waste
- Environmental and economic impact of cigarette production and tobacco product waste
- Potential novel policy approaches to reduce or mitigate waste at the municipal, county, or state level
- Bioaccumulation as a result of cigarette butt waste pollution in marine and fresh water environments

Third hand Smoke - "THS consists of residual tobacco smoke pollutants that remain on surfaces and in dust after tobacco has been smoked; or are re-emitted back into the gas phase; or react with oxidants and other compounds in the environment to yield secondary pollutants".¹⁶ Toxic compounds so far identified in THS include many that are also present in SHS and mainstream smoke, as well as novel tobacco-specific nitrosamines. If and how involuntary inhalation or dermal uptake of

¹⁶ Matt G.E. et al. 2011 When smokers move out and non-smokers move in: residential thirdhand smoke pollution and exposure. *Tobacco Control* 2011;20:e1 doi:10.1136/tc.2010.037382

THS affects human health is unknown. Research on third hand smoke has just begun; there are still many unknowns and numerous research opportunities.

For example, research is needed on:

- The identity of THS constituents
- Toxicology of potentially dangerous THS constituents
- Biomarkers of THS exposure
- Risk assessment under normal conditions in the field

TRDRP currently funds a California consortium on thirdhand smoke research. The participating research groups under this [consortium](#) have now established an infrastructure and methodologies to prepare and analyze THS samples for exposure and toxicological studies. Applicants under this Call, who plan to pursue THS research are encouraged to design a plan that will benefit from the existing TRDRP-THS research capacity supported through the consortium.

Indoor Air - Since the inception of the TRDRP much of its funding has been devoted to secondhand smoke (SHS) measurement, exposure and health effects. SHS causes premature death and disease in children including SIDS, acute respiratory infections, ear problems, asthma exacerbations and slowed lung growth and causes immediate adverse cardiovascular effects. As a result of these efforts and others across the country, SHS was classified by the US EPA as a Class A carcinogen and the 2006 Surgeon General's Report on the health consequences of involuntary SHS exposure concluded that there is no risk-free exposure to SHS. The only way to fully protect non-smokers from exposure to SHS is to eliminate smoking in indoor spaces. As a result laws have been passed in many states banning smoking in restaurants, bars and certain outdoor areas. However many municipalities and local businesses have been resistant to such measures. Research is needed to understand SHS exposure and health risks in multi-unit housing, health risks associated with SHS exposure in casinos and the social-behavioral, economic and legal barriers to adoption of smoking bans in these areas.

Indoor Vaping - With the emergence of e-cigarettes, the question of second hand vaping (SHV) has come to the fore. Currently, there is a paucity of research on SHV, with some studies showing low volatile organic compound compositions¹⁷ On the other hand other research shows metal concentration equal to and as high as those in conventional cigarettes¹⁸. Even without the science, laws are being proposed throughout the United States and around the world to restrict and or enable the use of e-cigarettes in the indoor environment. Currently in California there is a bill before the California Legislature to restrict e-cigarette in the same areas that regular cigarettes are restricted. Toxicological and biological exposure studies on Harmful and Potentially Harmful Constituents (HPHC) (as per [FDA guidance](#)) in context of e-cigarettes and SHV would be very timely.

¹⁷Schripp T, et al. Does e-cigarette consumption cause passive vaping? *Indoor Air*, 2012.

¹⁸ Williams M, et al. Metal and Silicate Particles Including Nanoparticles Are Present in Electronic Cigarette Cartomizer Fluid and Aerosol. *PLoS ONE* 8(3), March, 2013.

For example, research is needed on:

- Indoor SHS measurement in multi-unit housing
- Health effects of smoke exposure in multi-unit housing
- The potential economic, social, and health care cost impacts of controlling tobacco use in American Indian gaming casinos, California card rooms, and the US gaming industry
- Impact of indoor e-cigarette vaping
- Public perception of SHS exposure and public response to existing and proposed policies to control SHS in buildings and.
- The pragmatic and ethical implications of policies banning the smoking of addictive products in indoor public spaces
- The effects of different current local policy approaches to controlling smoking in multi-unit housing
- Countermeasures by the tobacco industry aimed at weakening public support for minimizing SHS exposure in multi-unit housing and indoor public spaces.

Outdoor Air - Air pollution consists of natural and manmade (anthropogenic) gaseous and particulate components that have adverse effects on cardiovascular and respiratory health.¹⁹ One of these manmade toxic air contaminants is tobacco smoke. Exposures to tobacco smoke in outdoor environments can be significant. Nicotine concentrations in several outdoor environments such as schools, amusement parks and airports, outside of office buildings can reach levels comparable to those found in smokers' homes.²⁰ Air pollution is often concentrated in areas where the most vulnerable populations live – near refineries, freeways and industrial areas and tobacco smoke is no exception: retail tobacco outlets, targeted and intense tobacco advertising and under-priced tobacco products are concentrated in under-served communities and communities of color.^{21,22} Recent evidence has shown that secondhand smoke can react with other common airborne pollutants to form carcinogenic nitrosamines not present in freshly emitted tobacco smoke. The health impact of thirdhand smoke exposure in enclosed environments

¹⁹ <http://www.atmosphere.mpg.de/enid/3or.html>

²⁰ "Environmental Tobacco Smoke: A Toxic Air Contaminant." California Air Resources Board California Environmental Protection Agency. October 18, 2006. <http://www.arb.ca.gov/toxics/ets/factsheetets.pdf>

²¹ Lipton R et al. 2008. The spatial distribution of underage tobacco sales in Los Angeles *Substance Use and Misuse*. 43(11): 1597-1617.

²² Hendriksen L. et al. 2012. Targeted advertising, promotion, and price for menthol cigarettes in California high school neighborhoods. *Nicotine Tob. Res.* 14:116-121.

is an area of active investigation. The interaction of tobacco smoke with outdoor air pollutants and its health effects, if any, is largely unexplored.

Research is needed, for example on:

- The effect of secondhand smoke on outdoor air quality.
- Whether significant levels of new carcinogenic compounds formed in outdoor environments when tobacco smoke and other air-borne pollutants interact.
- The impact of the greater concentration of tobacco outlets in poor communities on outdoor air quality compared to communities where there are fewer tobacco outlets. And if so, whether it contributes to disease outcomes.
- The magnitude of pollutant intake in non-smokers and smokers who live or work in environments where both tobacco smoke and other environmental pollutants such as ozone are present.
- Whether poor air quality and tobacco smoke result in increased risk to human health and if so the mechanisms by which this occurs.
- The public perception of SHS exposure and public response to existing and proposed policies to control SHS in outdoor public spaces.
- The pragmatic and ethical implications of policies banning the smoking of addictive products in outdoor public spaces.
- The countermeasures by the tobacco industry aimed at weakening public support for environmental impact policies related to smoking and outdoor air?

Research Priority 2: Advance innovative research in the early diagnosis of tobacco-related diseases.

Cancer and Pulmonary Disease - Substantial resources are spent by the federal government and the commercial sector on tobacco-related disease therapeutics. Many advances have been made and TRDRP has played a key role in supporting the efforts of California researchers in this and related endeavors since its inception. The next generation of TRDRP disease research support will focus solely on early diagnosis and secondary prevention of tobacco-related cancers and pulmonary and cardiovascular disease.

Cancer presents a particularly challenging problem with respect to non-invasive molecular diagnostics. Cancer develops from the accumulations of somatic mutations that impair the normal functioning of signaling pathways involved in cell proliferation, cell death and DNA damage repair. Much is known about the pathways and genes affected and many of the more successful treatments of advanced disease have been developed based on this body of knowledge. However it is clear that, rather than curing advanced cancer, the best chance for making an impact on cancer mortality is by focusing on the early detection of disease. Most cancers take years to develop and the majority of patients who die of cancer do so because the

cancer was not detected early, i.e., well before metastasis. Early detection of any cancer is a formidable endeavor but lung cancer presents a particularly complicated genomic landscape.²³ Lung cancers have many more somatic mutations than most other tumors and lung tumors from smokers have 10 times the number of somatic mutations as those from non-smokers. Besides the long-recognized intratumoral heterogeneity characteristic of cancers there also exists a high degree of interpersonal heterogeneity in the genetic profiles of tumors from different patients – every patient’s tumor is different. Given the complexity of the cancer genomic landscape it is clear that precise and highly sensitive methods that can detect early lung cancers with widely variant genetic profiles must be developed if lung cancer mortality is to be reduced.

Research is needed on:

- The role of inflammation and oxidative stress in tobacco-related disease pathogenesis.
- Identification of early detection biomarkers of carcinoma in situ and pre-metastatic malignancy.
- Clinical validation of known diagnostic biomarkers of disease.
- Development of precision analytical techniques to reliably and economically measure trace levels of biomarkers in non-invasive tissue samples such as blood, serum, expired air, saliva and urine.
- Identification of genetic signatures that can be reliably associated with variations in disease susceptibility among users of tobacco products.
- Development of chemoprevention approaches.

We encourage California researchers interested in this area to utilize new information, molecular data, and other resources available from NIH-funded efforts such as the Cancer Genome Atlas (TCGA) and the Early Detection Research Network in their proposals to the TRDRP as we believe these will present new opportunities for the early detection of tobacco-related cancers.

Cardiovascular Disease - Tobacco smoking and SHS exposure have long been recognized as prominent risk factors for cardiovascular disease. The mechanism by which known and as-yet-unidentified toxicants in smoked and smokeless tobacco products increase the risk of CVD is still a promising area of research particularly in light of the FDA’s new responsibility to evaluate and regulate existing and emerging tobacco products²⁴.

For example, research is needed on:

²³ Vogelstein et al. Cancer Genome Landscapes. *Science* 339:1546-1558, 2013.

²⁴ **U.S. Department of Health and Human Services. *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General.*** Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010.

- The effects and mechanism of action of tobacco toxicants and oxidative stress on endothelial function
- The identification of toxicants responsible for platelet activation
- The mechanism by which tobacco toxicants contribute to the development of insulin resistance.

Research Priority 3: Expand the scientific basis to inform the regulation of nicotine and tobacco products at the local, state and national level.

Since the [Family Smoking Prevention and Tobacco Control Act of 2009](#) granted the FDA the power to require appropriate testing of and evaluation of tobacco products, many new challenges have arisen and old questions persist. Increasingly nicotine delivery systems are produced in non-tobacco forms. Whether oral nicotine delivery devices (orbs and lozenges) or vaporized nicotine (e-cigarettes), all these products require scientific scrutiny to determine both their short and long-term health impact. The FDA has asserted that these nicotine containing products can be regulated like other tobacco products under the [Federal Food, Drug, and Cosmetic Act](#). Studies and findings about the toxicity and health effects of these products is not only essential at the federal regulatory level but will also be very useful to state and local tobacco control programs to educate consumers and inform regulatory policy.

These new research challenges take their place alongside old questions still confronting the FDA, foremost among them is what to do with menthol in tobacco products. There has been ample research linking menthol to youth initiation, especially among African Americans, Native Hawaiians, Filipinos and Puerto Ricans among others. Simply, candy flavorings promote tobacco initiation. The Tobacco Products Scientific Advisory Committee of the FDA agrees and states in their report of 2011 that “removal of menthol cigarettes from the market place would benefit the public health.” [TPSAC Menthol Report](#). Research in this area should be focused on the consequences of removing mentholated cigarettes from the market place.

Research to inform the regulation of e-cigarettes looms large. Should the FDA deem e-cigarettes as a drug as is proposed in the United Kingdom and the European Union? Or should the FDA classify these nicotine delivery devices as tobacco products and regulate them as such? The e-cigarette research agenda is a sprawling enterprise unto itself ranging from toxicological studies on the e-liquids and the vapors through the addictive potential and abuse liability, to effects on the de-normalization of existing tobacco products – research in all these areas and more are in play.

Research is needed on all putative modified risk products; products used to treat tobacco addiction; and e-cigarettes. Research is also needed to inform the creation of tobacco product standards and to assess consumer perceptions of tobacco product labeling and advertising. FDA’s scientific framework for regulation of tobacco products includes 1) Toxicity: constituents, formulation and product design including in vitro, in vivo and human laboratory and clinical trial analyses; 2)

Pharmacological addiction potential; 3) Abuse liability, i.e., use intensity and factors affecting use intensity in humans including product appeal, consumer perception, marketing and social influences; 4) After-market prevalence of use and health outcomes; and 5) Price and availability.

For example, research is needed on:

- How consumers may smoke de-nicotinized cigarettes differently
- Do electronic candy flavored hookah's lead youth to adopt other tobacco products?
- Electronic nicotine delivery devices (ENDS) as vehicles to new tobacco addiction versus cessation.
- Cigarette design features other than nicotine that may contribute to its reinforcing effect
- The risk/benefit of low nitrosamine tobacco products
- The results of targeted marketing of putative modified risk products, e.g., e-cigarettes, etc.
- Whether de-nicotinized cigarettes are an effective cessation tool
- How information regarding tobacco product constituents are best tailored to various sub-populations such as low SES, ethnic/cultural groups, youth, LGBT, and others
- The impact of trade agreements on regulation

We encourage all applicants interested in tobacco regulatory sciences to visit the [Center for Tobacco Products, Food and Drug Administration Research Priorities](#); many of their areas of interest and concern, mirror those of the TRDRP.

Research Priority 4: Prevent and treat tobacco use and promote equity among disproportionately impacted groups. Studies on the basic neuroscience of nicotine addiction.

Tobacco related diseases are not proportionately distributed in California, with the greatest incidence and mortality falling on communities of color, the LGBT community, the poor, and persons with mental illness. African Americans and Vietnamese men have the highest lung cancer rates in the state; Latino's have the greatest exposure to secondhand smoke while at work; Vietnamese, Koreans and American Indians have some of the highest smoking rates in the state; close to half of cigarettes sold are purchased by persons with mental illness; LGBT smoking rates are significantly higher than the general population; and persons of low socioeconomic status (SES) have low cessation rates and are at increased risk for lung cancer. Understanding how and why different sub-populations of Californians use tobacco products and whether there are discernible differences in the health consequences of their use are critical steps towards reducing tobacco-related health disparities.

With the constant migration of people from the Pacific Basin and Rim, Asian countries, South and Central America and Mexico, coupled with in-migration from other states, California presents tobacco control researchers with an extremely rich and heterogeneous population. The TRDRP encourages all investigators to capitalize on this population diversity to craft research proposals that seek to understand and mitigate tobacco related health disparities and promote equity. Geography, occupation, ethnicity, race, gender, sexual or gender orientation, culture, active duty and veteran military background, age (youth and the elderly), SES, and/or disability can define populations experiencing tobacco-related health disparities. Consistent with this priority, all investigators should focus their studies on one or more specific disproportionately impacted groups rather than generally diverse samples of participants.

Electronic cigarettes and other electronic nicotine delivery systems (ENDS) are rapidly growing in popularity while research on the health risks, efficacy for sustained smoking cessation, dual use with traditional tobacco products, impact on youth and other vulnerable groups including the impact of ENDS marketing and advertising on social norms for tobacco use is either non-existent or in its infancy. We welcome proposals that elucidate social, behavioral, cultural, and economic correlates of ENDS.

Examples of broad research topics include:

- The state prevalence of ENDS use among priority populations
- Perceptions of secondhand and thirdhand vaping among priority populations
- Appropriate health communications on the health risk, cessation and addiction potential of ENDS
- The state prevalence of tobacco use among California's priority populations (e.g, racial/ethnic minority groups, homeless communities, and people with mental illness)
- Culturally appropriate smoking cessation interventions for Asian ethnic groups
- Migrant workers and smoking
- How the LGBT bar environment promotes smoking behavior
- Targeted marketing aimed toward girls and young women
- How much tobacco use in the American Indian community is ceremonial versus commercial
- How local multi-unit smoking regulations are perceived and implemented in low SES and communities of color
- Smoking in the military (active duty and veterans) and the subsidization of tobacco products in the military
- The retail environment; point of sale promotions are where the tobacco industry spends 90% of its advertising dollars.

- The impact of banning menthol tobacco products and identification and prevalence of menthol analogues (e.g., ENDS with menthol as a characterizing flavor).
- The economic impact of tobacco use and tobacco product availability in priority population communities. The impact of tobacco taxes and whether they are regressive for racial/ethnic minorities and persons of low income including people with mental illness.
- The relationship between stress and tobacco use for priority populations.

Social and Behavioral Interventions to Treat Tobacco Dependence – Evidence based tobacco dependence treatments do not reach some groups of smokers. There has been mixed evidence on the effectiveness and cost-benefit of tailored smoking cessation interventions for priority groups compared to treatments developed for the general population. Research is needed on the effectiveness, cost-benefit, and scalability of interventions for the general population and priority groups.

Patterns of tobacco use have shifted to light and non-daily smoking yet the evidence supporting tobacco treatments are based on heavier smokers. Research is needed on appropriate interventions for light and nondaily smokers.

Provider-initiated cessation and relapse prevention advice is on the decline. Research is needed on addressing the barriers to provider-initiated tobacco interventions.

We also encourage applications with a focus on delivery of tobacco cessation treatments in non-traditional settings, which include but are not limited to prison reentry and juvenile justice related programs, employment agencies, homeless shelters, and faith-based organizations. Research on tobacco treatment delivery for priority groups in traditional settings (e.g., primary care) is still needed.

Cessation Medications: Applicants proposing to use a cessation medication with adult smokers may be able to obtain medication at no cost through a TRDRP arrangement with the pharmaceutical company. Contact Norval Hickman for details.

Youth-focused Research - Youth-focused epidemiological, prevention, and cessation research conducted inside and outside of schools are needed and applicable to all TRDRP mechanisms.

The TRDRP and California Department of Education (CDE) have identified the following research questions/topic areas as responsive to tobacco control priorities. However, applicants may also submit applications addressing other youth-focused research needs.

- The use of ENDS (e.g., electronic cigarettes) and non-nicotine, fruit flavored e-hookahs is on the rise. ENDS and e-hookahs are designed to attract youth

and may renormalize smoking in public places. Research on the prevalence, prevention, and cessation of ENDS for youth is needed.

- The CDE has requested research findings that can directly inform school policy on ENDS and related vapor-producing products.
- A rigorous evaluation and/ or meta-analysis of the mechanisms and processes that link tobacco control policies to youth tobacco prevalence. The CDE has 15 years of tobacco prevalence data from California schools and is willing to coordinate with investigators. Investigators interested in this area should consult with CDE to determine the appropriate level of involvement for the research project.
- What are the shared causes and risks associated with smoking uptake for both tobacco and marijuana? How does marijuana uptake influence tobacco use and is there a reciprocal cause or effect between tobacco and marijuana use?
- What are the unique risk and protective factors for tobacco use among priority population youth? What factors increase vulnerability to tobacco use in priority population youth in general? What factors increase vulnerability in specific priority groups? For example, what risk or protective factors increase or reduce tobacco vulnerability for LGBT youth?
- How does the tobacco industry adapt the availability and marketing of products to target youth to consume tobacco, nicotine, electronic cigarettes, e-hookahs and what practices best counter industry efforts?
- What are the best instructional content and strategies to help youth understand the environmental toxicity of tobacco litter and engage youth in anti-tobacco litter advocacy?
- What interventions work best for youth tobacco users with co-occurring risk behaviors? Early initiation of tobacco use among youth is a known predictor of other risk behaviors and problems, especially among 5th-7th graders and the most vulnerable youth. Will efforts to reduce student tobacco use be more successful if embedded in interventions that address a broad range of risk behaviors and problems? If so, what are the best practices for embedding tobacco prevention approaches in a multiple risk behavior intervention?

Basic Neuroscience of Nicotine Addiction - Understanding and blunting nicotine addiction remains critical to tobacco cessation efforts. Over 30 million people remain addicted to tobacco products generally and nicotine in particular. While advances in understanding how nicotine affects the brain and subsequently leads to dependence have been made, the key mechanisms and pathways that can blunt nicotine's addictive properties are still to be fully identified and understood. During the past year there has been interesting advances in understanding the efficacy of nicotine vaccines; some studies showing much promise, while others questioning

this direction for smoking cessation^{25,26}. This somewhat contradictory findings only further highlight the need for focused research on what therapeutic agents and processes can be identified to stem the tide of nicotine addiction. And with the emerging discussion of “end game strategies,” focused research on reduced nicotine content cigarettes are sorely needed.

For example, research is needed on:

- Identifying vaccines that can prevent the uptake of nicotine over a long period of time
- Improving the efficacy of varenicline and/or identifying and developing more efficacious partial agonists
- Testing the efficacy and side effects of varenicline in racial/ethnic minority, LGBT and low socioeconomic status groups, sectors typically not fully represented in clinical trials
- Addictive potential of e-cigarette vapor
- The addictive potential and abuse liability of different tobacco products
- Long-term use of low dose nicotine products (cigarettes, patch, gum, etc.)
- Desensitization of nicotine’s effects on smokers by interrupting the causal chain in nicotine addiction thereby leading to more effective smoking cessation treatments

Research Priority 5: Advance the ability of communities throughout California to assess and limit the influence of the tobacco industry.

The tobacco industry and their allies in Sacramento were instrumental in blocking state-wide legislation that would have banned smoking in multiunit housing. Still, at the local level, the move for smoke free multiunit housing is growing and probably will return to Sacramento in the near future. Understanding residents’ wants and needs is critical in this regard.

While we are still reeling from the tobacco industry’s \$50 million dollar investment to defeat Proposition 29 , the industry has not stopped in its largess in Sacramento. Indeed, the tobacco industry remains a fixture in Sacramento that the [The Center for Tobacco Policy & Organizing of the American Lung Association in California](#) has documented well. Already the tobacco industry has begun mounting an effort to prevent the regulation of e-cigarettes. More broadly, research that documents how and when the tobacco industry affects state and local policies can be very helpful to tobacco control advocates. Policy research that demonstrates the health impact of

²⁵ Fagerstrom K, Tonstad S. Reduced binding to nicotinic receptors after **nicotine** vaccination: is the effect big enough to be clinically meaningful? Am J Psychiatry, 170(4):359-61, 2013.

²⁶ Esterlis I, et al. Effect of a Nicotine Vaccine on Nicotine Binding to β_2^* -Nicotinic Acetylcholine Receptors In Vivo in Human Tobacco Smokers. Am J Psychiatry, 170 (4):399-407, 2013.

smoke free policies and regulation can give local tobacco control advocates the necessary evidence for establishing smoke free multi-unit housing.

For example, research is needed on:

- The role of the tobacco industry in affecting local policies and ordinances
- The tobacco industry's contributions to non-profit organizations and their effect on organizational policies and programs
- The tobacco industry's presence or influence in our public schools, civic, cultural, advocacy organizations, and the hospitality industry
- The tobacco industry's role in maintaining smoking in Indian Gaming Casinos
- Evaluation of community efforts to blunt the activities of the tobacco industry
- The retail environment; point of sale promotions are where the tobacco industry spends 90% of its advertising dollars
- E-cigarette regulation
- Policy research that documents lives and money saved by tobacco control ordinances
- The impact of trade agreements on regulation

2013-2014 Grant Mechanisms	Purpose	Max Amount	Max Dur (Yrs)	LOI Due	Applications Due	Award Start
Exploratory & Developmental (XT)	Pilot and Exploratory Research Projects	\$200,000	Up to 2	Feb 13, 2014	Apr 21, 2014	Dec 1, 2014
Research Project (RT)	Fully-developed Research Projects with Previously Developed Supporting Data	\$375,000	Up to 3			
Participatory Research - (Pilot CARA/SARA)	Preliminary Studies for Participatory Projects	\$200,000	Up to 2			
Participatory Research - (Full CARA/SARA)	Community or School and Academic Collaborative Research Projects	\$375,000	Up to 3			
Postdoctoral (FT)	Postdoctoral Career Development	\$135,000	Up to 3	Oct 15, 2013	Dec 17, 2013	Aug 1, 2014
Dissertation (DT)	Pre-doctoral Research Training	\$60,000	Up to 2			

Special Projects (ST) – Conference	Research Dissemination	Variable	1	Not Required	Continuous	Variable
Cornelius Hopper Diversity Supplement (CHDAS)	Research Training	\$30,000	Up to 2	Not Required	Apr 22, 2013	Aug 1, 2013

MECHANISMS OF SUPPORT

The following types of grants are available to pursue the above five research priorities.

Overview of Current 2013-2014 Mechanisms:

NOTE: Principal Investigators may submit more than one proposal per funding cycle; however only one grant in a given award mechanism will be awarded to any one individual.

EXPLORATORY/DEVELOPMENTAL RESEARCH AWARD (XT)

Purpose: The purpose of these grants is to gather preliminary data or demonstrate proof-of-principle. The ultimate goal of these awards is to provide the foundation for proposals for fully developed research project awards from other funding programs or TRDRP.

Maximum Award: Average annual direct costs cannot exceed \$100,000. Allowable expenses include salaries, fringe benefits, supplies, equipment, and travel. Travel to scientific meetings is restricted to \$2,000 per year (excluding travel to the TRDRP Conference). All applicants must budget a maximum of \$500 for mandatory travel to the TRDRP Conference in the first year. Full indirect costs are allowed to non-UC institutions. Indirect costs to UC campuses are capped at 25%.

Maximum Duration: 2 years.

Review Criteria:

- **Responsiveness to Intent of the Award Type:** Is the study pilot or exploratory in nature? Does the study represent a new research trajectory that is not currently funded from other sources? Does the applicant describe how the pilot study will lead to an expanded research effort in the future including specific funding sources and award types?
- **Significance:** Does this study address an important problem? If the aims of the application are achieved, how will scientific knowledge or clinical practice be advanced? What will be the effect of these studies on the concepts,

methods, technologies, treatments, services, or preventative interventions that drive this field of tobacco-related diseases, tobacco control, social & participatory research, nicotine addiction, prevention or policy?

- **Approach:** Are the conceptual or clinical framework, design, methods, and analyses adequately developed, well integrated, well reasoned, and appropriate to the aims of the project and the pilot nature of the grant type? Does the applicant acknowledge potential problem areas and consider alternative tactics?
- **Innovation:** Is the project original and innovative? For example: Does the project challenge existing paradigms, interventions, clinical practice, or policy issues; address an innovative hypothesis or critical barrier to progress in the field? Does the project develop or employ novel concepts, approaches, methodologies, tools, or technologies for this area?
- **Near Term Cost Leveraging Opportunities:** When the TRDRP-funded studies under an Exploratory/Development Research Award are completed, is there compelling promise and high likelihood that their results will constitute a larger RO1 or PO1 study with high probability of funding from another agency such as the NIH or from another TRDRP mechanism? In other words, with TRDRP funding of the proposal, can the applicant leverage funding from other sources to further develop this area of research, within 2-3 years after initial funding?
- **Investigators:** Are the investigators appropriately trained and well suited to carry out this work? Is the work proposed appropriate to the experience level of the PD/PI and other researchers? Does the investigative team bring complementary and integrated expertise to the project (if applicable)?
- **Environment:** Does the scientific environment in which the work will be done contribute to the probability of success? Do the proposed studies benefit from unique features of the scientific environment, or subject populations, or employ useful collaborative arrangements? Is there evidence of institutional support?

RESEARCH PROJECT AWARD (RT)

Purpose: Research Project Award applications must be fully developed, scientifically rigorous and include sound background information, hypotheses and substantial as well as promising preliminary or supporting data. **Research Project applications should not be exploratory in nature and lacking in previously developed supporting data.**

Maximum Award: Average annual direct costs cannot exceed \$125,000. Allowable expenses include salaries, fringe benefits, supplies, equipment, and travel. Travel to scientific meetings is restricted to \$2,000 per year (excluding travel to the

TRDRP Conference). All applicants must budget a maximum of \$500 for mandatory travel to the TRDRP Conference in the first year. Full indirect costs are allowed to non-UC institutions. Indirect costs to UC campuses are capped at 25%.

Maximum Duration: Up to 3 years

Review Criteria:

- **Responsiveness to Intent of the Award Type:** Is the study fully developed rather than pilot or exploratory in nature? Does the applicant describe previous research upon which the study is based and report reasonably compelling previous findings and supporting data for the conduct of the proposed project?
- **Significance:** Does this study address an important problem? If the aims of the application are achieved, how will scientific knowledge or clinical practice be advanced? What will be the effect of these studies on the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field of tobacco-related diseases, tobacco control, social & participatory research, nicotine addiction, prevention or policy?
- **Approach:** Are the conceptual or clinical framework, design, methods, and analyses adequately developed, well integrated, well reasoned, and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternative tactics?
- **Innovation:** Is the project original and innovative? For example: Does the project challenge existing paradigms, interventions, clinical practice, or policy issues; address an innovative hypothesis or critical barrier to progress in the field? Does the project develop or employ novel concepts, approaches, methodologies, tools, or technologies for this area?
- **Investigator:** Are the investigators appropriately trained and well suited to carry out this work? Is the work proposed appropriate to the experience level of the PD/PI and other researchers? Does the investigative team bring complementary and integrated expertise to the project (if applicable)?
- **Environment:** Does the scientific environment in which the work will be done contribute to the probability of success? Do the proposed studies benefit from unique features of the scientific environment, or subject populations, or employ useful collaborative arrangements? Is there evidence of institutional support?

PARTICIPATORY RESEARCH AWARDS (CARA/SARA)

Purpose: The purpose of the Community Academic Research Awards (CARA) and the School Academic Research Awards (SARA) is to stimulate and support collaborations between community-based organizations/schools with academic investigators. These awards support a collaborative partnership to perform scientific research into tobacco control issues that are identified as important and meaningful to specific communities/schools in California.

The roles and responsibilities for each of the partners must be clearly described. The applicant partners must demonstrate the use of methods that are relevant, culturally sensitive, and appropriate in terms defined and accepted by the participating community members/schools. Establishing a high level of contact and communication between community or school staff and the researchers is imperative and must be described. Efforts to mitigate power differences in decision making and control at all stages of the research process should be described. All partners must be involved in each stage of the project, i.e., identifying the problem, formulating the research questions, designing the intervention, writing the grant application, carrying out the research, and interpreting project outcomes.

TRDRP encourages applications that represent the breadth of community participatory research approaches. For example, one project may focus on developing new research methods for a particular community/school while another project could focus on tailoring scientifically-based methods to an underserved group or community not included in the literature.

The process of building trust and a working relationship among partners is part of the spirit of participatory research and should be described in the application. A strong application will describe steps towards developing and maintaining a long-term working relationship with collaborating team members and organizations/schools. Applicants should include a plan to provide information related to the project back to the involved communities/schools.

Community is broadly defined as any group of individuals sharing a common characteristic, such as culture, language, race, ethnicity, gender, age, job classification, sexual orientation, or other shared attributes that might impact the effectiveness of tobacco control programs.

Schools can be any public elementary, middle and high schools, continuation high schools, alternative, juvenile court, community schools or direct-funded charter schools.

Supplemental Funding for pilot and full SARAs: Supplemental funding to defray school-site costs related to participating in a SARA is available for schools that are operated by a local educational agency. Local educational agencies are school districts, county offices of education or direct-funded charter schools that

have a valid County-District-School Code in the California Public School Directory. Additionally, to be eligible for these contracted supplemental funds, the participating local educational agency must be certified by CDE as having met tobacco-free school district criteria on or before July 1, 2013. A list, by county, of certified local educational agencies that meet the California Health and Safety Code Tobacco Free Schools requirements can be found at:

<http://www.cde.ca.gov/ls/he/at/tobaccofreecert.asp>. Beginning with this Call for Applications, the budget for these costs is submitted as part of the application to TRDRP. **Pilot and full SARA applicants are now required to submit at least one letter of support from a local school district or the California Department of Education (CDE) with their application.**

Training in Community/ School Based Participatory Research

TRDRP will hold a one-day training on applying Community-Based Participatory Research (CBPR) principles in tobacco control research for applicants planning to submit a pilot or full CARA/SARA application in 2014. The goal of the training is to provide resources and feedback that will encourage competitive applications. The training will include didactic presentations and a mock review of applicants' brief proposals. The training is intended for community / school and academic partners and the collaborating team is expected to attend the training. The training is scheduled for Thursday, February 13, 2014. A brief project proposal of five pages or less is required and due by January 13, 2014. Please note that a separate letter of intent (LOI) is still required. Contact Norval Hickman if interested in participating in this unique training opportunity.

CARA/SARA Pilot Awards

A pilot award supports the initial phases of a CARA or SARA project, including solidifying the collaborations, identifying research questions, negotiating roles and responsibilities, and detailing the research plan and methods . An expected outcome from these awards is the building of a strong working relationship between academic and community partners, the building of trust between partners and the community served and the sharing of power and decision making, which will establish a foundation and capacity for research.

Maximum Duration: 2 years

Review Criteria:

- **Responsive to the Intent of the Award Mechanism:** Is the project pilot in nature? Are the proposed activities focused on accomplishing the preliminary work necessary to provide a strong basis for continuing collaborative research?

- **Significance:** Does this study address an important problem? If the aims of the application are achieved, will the completion of the elements stated in the pilot allow investigators to compete for a full CARA/SARA? How will the community/school or community participants/students, staff, and faculty, the academic institutions, and their investigators benefit from the anticipated outcomes of the proposed research?
- **Approach:** Are the conceptual framework, design (including composition of study population), methods, and analyses appropriately developed for the pilot nature of the project? Are both the community/school and academic partner involved in the formation of the research question(s)? Does the proposed study methodology include the collection of preliminary data? Does the applicant clearly describe and/or define the community/school of interest? Do the research methods include perspectives and beliefs of community residents or school population of interest? Does the applicant describe procedures for community/school oversight during the implementation of the research? Does the applicant acknowledge potential problem areas and consider alternative tactics? Is the proposed work feasible?
- **Collaboration:** Are procedures identified to establish or strengthen the collaborative partnership? Do community/school members participate as equal partners in the research process (e.g., as core members of the research team or hired as research assistants)? Does the research process apply the knowledge of community participants/school members in the phases of planning, implementation, and evaluation? Are measures included to assess the partnership? Are measures appropriately justified? Will the proposed study empower the community or school to address policy, economic, and social justice issues related to tobacco use? Are researchers and community or school members prepared to work together for an extended period of time?
- **Innovation:** Does the project employ novel concepts, approaches or methods? Are the aims original and innovative? Does the project challenge existing paradigms or develop new methodologies or technologies?
- **Investigators:** Are the principal investigators and other key personnel listed in the grant proposal appropriately trained and well suited to carry out community- or school-based research? Are the roles and responsibilities of the partners clearly defined? Does the academic partner have a track record in the community, school or target school population? Has the community or school partner worked with researchers before? Has the academic partner

placed the research question in its proper scientific context? How will the research process allow academic researchers to learn more about the community or school and how community/school members can learn more about the academic institution? Is the work proposed appropriate to the experience level of the principal investigator and other researchers (if any)?

- **Environment:** Does the community or school environment in which the work will be done contribute to the probability of success? Does the proposed intervention take advantage of unique features of the target community/school and/or employ useful collaborative arrangements? Is there evidence of academic institutional support and community- or school-based organizational support?

CARA/SARA Full Awards

These awards are to support fully developed CARA and SARA projects. These awards support a collaborative partnership to perform scientifically rigorous research into tobacco control issues that are identified as important and meaningful to specific communities/schools in the state. Ideas from community and academic partners should be integrated and recognizable in the application.

There must be a systematic plan developed by the collaborating team for communicating the work and/or findings back to the community. A few examples include disseminating the relationship building process or study results to community/school programs engaged in similar work or to the target community. Although it is advantageous for the researcher to have a history of involvement with the specific community or school, lack of such experience is not a disqualifying factor.

Maximum Duration: 3 years

Review Criteria:

- **Responsiveness to Intent of the Award Type:** Is the project fully developed rather than pilot or exploratory in nature? Does the applicant describe previous collaborative research involving a process to build strong collaborative relationships and report reasonably compelling previous findings supporting the conduct of the proposed project?
- **Significance:** Applicants should address important problems identified by the target community/school and demonstrate how scientific knowledge, community/school relations, and academic and community/school collaboration will be advanced. Applicants must describe how the community

or school will benefit from the anticipated outcomes of the proposed research.

- **Approach:** The conceptual framework, experimental design, research methods and a description of the study population must be adequately developed, well-integrated, and appropriate to the aims of the project. CARA and SARA applicants must clearly describe and/or define the community/school of interest and maintain a balance between sufficiently rigorous research methods and integrating the perspectives and beliefs of community residents or school members. Applicants must delineate how the research findings will be disseminated within and to other communities and schools. Additionally, applicants must describe how research findings are disseminated within and to academic institutions. The applicant must describe procedures for community/school oversight during the implementation of the research. Applicants should acknowledge potential problem areas and consider alternative tactics in discussing the feasibility of their project.
- **Collaboration:** Community/school members and academic representatives should participate as equal partners in the research process. Specifically, both the community/school partner and the academic partner should be involved in all phases of planning, implementation, and evaluation of the proposed research. Both partners must be involved in analytic issues: interpretation, synthesis, and the verification of findings and conclusions. Applicants should discuss how the proposed research intervention will empower the community/school to address political, social and economic issues related to tobacco use. Applicants must indicate that they are prepared to work together for an extended period of time.
- **Innovation:** When possible, the proposed research project should employ novel concepts, approaches or methods. Identifying original and innovative paradigms or developing new methodologies or technologies can be a plus for participatory research effort.
- **Investigators:** The principal investigators and other key personnel listed in the grant proposal should be appropriately trained and experienced to carry out community-based participatory research and/or school-based participatory research. Applicants should highlight the academic partner's track record in the community/school and the community/school partner's history of working with researchers and/or research projects. The academic partner has the responsibility of placing the jointly identified research question in its proper scientific context. Additionally, the research process

should allow the academic partner to learn more about the community/school and community/school members to learn more about the academic institution.

- **Environment:** The community and/or school environment in which the work will be done should contribute to the probability of a successful intervention and collaboration. The proposed intervention should take advantage of unique features of the target community/school to bolster collaborative arrangements. Applicants should demonstrate evidence of academic institutional support and community/school support.

POSTDOCTORAL FELLOWSHIP AWARD (FT)

Purpose: These are awards for individuals to obtain postdoctoral research training under a designated mentor. The application must be prepared and submitted exclusively by the fellow and must outline an original research project (separate from the project of a mentor). Letters of support addressing the candidate's training, potential, and the commitment of the mentor and the department to the candidate's career development are essential. To be eligible, the candidate must be recognized by the applicant institution as a postdoctoral fellow no later than August 1, 2014. U.S. citizenship is not a requirement. The fellow must commit a minimum of 75 percent time to the research project.

Maximum Award: \$45,000 annual direct costs per year averaged over the duration of the award. Indirect costs are capped at 8%.

Maximum Duration: 3 years

Review Criteria:

- **Significance:** Does the study address an important problem? If the aims of the application are achieved, how will scientific knowledge be advanced? What will be the effect of these studies on the concepts or methods that drive this field?
- **Approach:** Are the conceptual framework, design (including composition of study population), methods, and analyses adequately developed, well-integrated and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternative tactics? Is the proposed work feasible?

- **Innovation:** Does the project employ novel concepts, approaches or methods? Are the aims original and innovative? Does the project challenge existing paradigms or develop new methodologies or technologies?
- **Investigator's Independence and Potential:** Discuss the candidate's potential for establishing an independent research career. Specifically cite previous training and experience, and letters of recommendation.
- **Career advancement:** Discuss the likelihood that the proposed training experience will contribute significantly to the development of the candidate's career potential as an investigator in research on tobacco use and/or tobacco-related disease.
- **Advisor's commitment:** Discuss the quality of the training resources and environment, particularly the advisor and the department, citing advisor's letter of support.

DISSERTATION RESEARCH AWARDS (DT)

This award is intended to support the dissertation research of a doctoral candidate pursuing tobacco-related research. Applications in all relevant research areas are welcomed, but applications in the social/behavioral sciences and in public policy are encouraged. The award is designed for students advanced to candidacy no later than August 1, 2014, and initiating their dissertation research. The applicant and principal mentor must be affiliated with an academic research institution. U.S. citizenship is not a requirement. The candidate must commit a minimum of 80 percent time to the research project.

Maximum Award: \$20,000 annual direct costs averaged over the duration of the award for stipend, supplies, and domestic travel. An additional maximum of \$10,000 per year is allowed for tuition/enrollment fee remission, fringe benefits, and health insurance. No equipment purchases are allowed. Indirect costs are capped at 8%.

Maximum Duration: 2 years

Review Criteria:

- **Significance/Approach/Innovation:** Does the study address an important problem? Are the conceptual framework, design (including composition of study population), methods, and analyses adequately developed, well-integrated and appropriate to the aims of the project? Does

the applicant acknowledge potential problem areas and consider alternative tactics? Is the proposed work feasible? Is the proposed work appropriate to the experience level of the principal investigator? Are the aims original and innovative?

- **Academic Qualifications:** Discuss the quality of the academic record and the prior research experience of the applicant.
- **Resources and Environment:** Discuss the qualifications and the research/training experience of the applicant's sponsor or research advisor.
- **Advisor's Commitment:** Discuss the match between the research interests of the student and the research advisor/sponsor; the commitment of the research advisor and other mentors to the candidate, citing letters of support.

ADDITIONAL REVIEW CRITERIA THAT APPLY TO ALL RESEARCH AWARD MECHANISMS

- **Protection of Human Subjects from Research Risk:** If human subjects are involved protections from research risk relating to their participation in the proposed research will be assessed.
- **Inclusion of Women, Minorities and Children in Research:** If human subjects are involved the adequacy of plans to include subjects of both genders, all racial and ethnic groups (and subgroups), and children as appropriate for the scientific goals of the research will be assessed. Plans for the recruitment and retention of subjects will also be evaluated.
- **Care and Use of Vertebrate Animals in Research:** If vertebrate animals are involved in the project, plans for their care and use will be assessed.

SPECIAL PROJECTS – CONFERENCE SUPPORT (ST)

Support can be requested for scientific conferences to assess tobacco's impact on California populations; or to allow tobacco investigators to evaluate, in a timely manner, new and breaking trends in tobacco control or tobacco-related disease research. In order to qualify for funding, the planned activities must be directly related to one or more of TRDRP's Research Priorities. The activity must primarily take place in California, involve California investigators, and include, where applicable, discussants and speakers funded by TRDRP. Proposals may be submitted at any time and should be submitted on proposalCENTRAL. Applications

for Conference Awards will go through a separate review process. The TRDRP Scientific Advisory Committee will make recommendations regarding funding. Conference grants will be limited in number, scope, cost, and duration. Please contact a TRDRP Program officer regarding the appropriateness of your proposal prior to submission.

Cornelius Hopper Diversity Award Supplement (CHDAS)

This supplement is for the training of promising individuals who are or who want to pursue careers in the field of tobacco-related disease research or in tobacco control. Supplements may be requested only for trainees living in California and include those: (a) from socioeconomic, cultural, ethnic, racial, linguistic, and geographic backgrounds who are and/or have been underrepresented in tobacco research; or (b) pursuing a research interest focusing on cultural, societal, or educational problems as they affect underserved segments of society

Investigators must have at least one year left on their TRDRP award to ensure the best conditions and results for prospective trainees. Therefore, the CHDAS is available only after the first year of the grant application.

Eligible Principal Investigators

The CHDAS is available to current principal investigators of:

- Research Project Awards
- CARAs
- SARAs
- Exploratory/Developmental Awards

Eligible Trainees*:

- **Undergraduate students**
- **Community members**
- **School personnel**
- **Graduate students**
- **Medical students**

***Individuals who are eligible for TRDRP Dissertation or Postdoctoral Fellowship Awards are encouraged to apply through those mechanisms rather than applying for Hopper Supplements.**

The supplement cannot be transferred from one person to another; the award can be used only for the originally identified trainee. CHDAS trainees must live and be trained in California.

Overall, trainees should demonstrate high potential and promise for a career in tobacco control or tobacco-related disease research. Principal investigators should encourage trainees from socioeconomic, cultural, ethnic, racial, linguistic, and geographic backgrounds who would otherwise not be adequately represented in their field or who are from underserved communities. However, in accordance with state law, preference will not be given to applicants based on race, color, ethnicity, gender, or national origin.

Maximum Supplement Amount: \$15,000 annual direct costs. Indirect costs are allowed for the TRDRP portion in accordance with TRDRP policy.

Allowable Expenditures: Salary, fringe benefits, tuition, and enrollment fees for the trainee, domestic travel, and indirect costs, where appropriate. Award funding cannot be used for equipment.

Maximum Duration: 2 years

Review Criteria:

- Trainee must demonstrate a commitment to tobacco research and tobacco control, including pursuit of a research or tobacco control career centered on tobacco-related disease.
- Trainees should document barriers, both current and past, that may prevent her or him from realizing a career in tobacco-related disease research or tobacco control. For example, the absence of a family member who attended college; matriculation at school with poor curricular support and financial backing for higher education; having a physical or learning disability; and/or working long hours while attending school.
- Trainees should describe **in their own words** the extent that their research interests focus on cultural, societal, health or educational disparities as they affect underserved segments of our state. Additionally, describe how the proposed research or tobacco control training will be used toward ending California tobacco-related disease disparities.
- Principal investigators and trainees must construct a detailed, well-rounded training experience. This should include, but not be limited to: scientific research methods that will be learned; classes, seminars and symposia that will be attended; the identification of a relevant research question to be pursued; research team meeting participation; other mentor-like

relationships the trainee will have with research team members; and, if applicable, any relevant involvement in the community, school, etc.

- Principal investigators should document the exact amount of time that they will regularly meet with the trainee. Investigators should also identify other members of the research team that will play a mentoring role and specify their time commitment to mentoring the trainee and their contribution to the trainee's learning experience.

GENERAL ELIGIBILITY

Investigators from California not-for-profit organizations are eligible for TRDRP funding, including but not limited to colleges, universities, hospitals, laboratories, research institutions, local health departments, community-based organizations, voluntary health agencies, health maintenance organizations, and other tobacco control groups. The Principal Investigator should be designated by the sponsoring institution in accordance with its own policies and procedures.

The Principal Investigator must supervise the research project and then trainee directly and in person. Although the research undertaken with TRDRP funds must be conducted primarily in California, part of the work may be done outside California if the need to do so is well-justified (e.g., it is integral to the achievements of a specific aim), and the results of such work may be applied to understanding the causes and/or improving the prevention and treatment of tobacco-related diseases in California.

In accordance with University of California policy, Principal Investigators who are University employees and who receive any part of their salary through the University must submit grant proposals through their UC campus contracts and grants office (see "[Policy on the Requirement to Submit Proposals and to Receive Award for Grants and Contracts through the University](#)," University of California Office of the President, December 15, 1994). Exceptions must be approved by the UC campus where the Principal Investigator is employed. US citizenship is not a requirement for eligibility.

SUBMISSION

Submission of a Letter of Intent (LOI) is required to apply for all research awards except for Special Projects and Cornelius Hopper Diversity Award Supplements. You will have access to the application web pages when the LOI is approved in proposalCENTRAL, at which time you will receive a notification e-mail. To be accepted for a full application a Letter of Intent (LOI) must address one or more of TRDRP's five research priorities.

LOIs and proposals must be submitted using the online system, proposalCENTRAL at <https://proposalCENTRAL.altum.com/>. To submit an LOI:

1. Go to proposalCENTRAL.
2. Log in to the system.
3. Click on the "Grant Opportunities" tab (far right, gray).
4. Click on University of California Tobacco-Related Disease Research Program and find the row for the award type in which you are interested.
5. Click on "Apply Now" on the far right.
6. On the title page (**LOI Section 1**), enter the title (60 characters or fewer including spaces). Note: this and other parts of the application can be edited later.
7. Select the Research Priority using the radio buttons.
8. Click on "Save". This creates a record of your LOI in the system that can be accessed in later visits for additional work or editing under the "Manage Proposals" tab (far left tab on the main screen, blue).
9. Click on **LOI Section 2**, "Download Templates and Instructions" in the gray sidebar on the left. Follow the instructions to complete the process.

For technical help with proposalCENTRAL, please email pcsupport@altum.com or call 800-875-2562 (Toll-free U.S. and Canada). ProposalCENTRAL customer support is available Monday – Friday from 8:30am - 5:00pm (EST)

KEY DATES:

	Postdoctoral and Dissertation Awards	CARA/SARA Awards	All Other Awards*
Application Materials Available	September 5, 2013	December 2, 2013	December 2, 2013
Brief Pre-Proposals Due	Not Applicable	Monday, January 13, 2014	Not Applicable
Applicant Training Workshop	Not Applicable	February 13, 2014	Not Applicable
Letter of Intent Due (Required)	October 15, 2013	February 13, 2014	February 13, 2014
Full Application Due	December 17, 2013	April 21, 2014	April 21, 2014
Funding Notification	May, 2014	September, 2014	September, 2014
Award Start Date	August 1, 2014	December 1, 2014	December 1, 2014

* Except Conference Support and Cornelius Hopper Diversity Supplement Awards

CONTACT INFORMATION

Questions regarding scientific issues or TRDRP policies should be directed to the appropriate TRDRP Program Officer:

Biomedical Sciences

M.F. Bowen, Ph.D.

(510) 987-9811

mf.bowen@ucop.edu

Environmental Science/Public Health & Policy/Neuroscience:

Phillip Gardiner, Dr. P.H.

(510) 987-9853

phillip.gardiner@ucop.edu

Social Behavioral Sciences/Participatory Research

Norval Hickman, Ph.D, M.P.H.

510-987-9032

norval.hickman@ucop.edu

Biomedical and Environmental Sciences

Anwer Mujeeb, Ph.D.

510-287-3340

anwer.mujeeb@ucop.edu

Inquiries regarding application forms and instructions may be directed to the Research Grants Program Office (RGPO): RGPOGrants@ucop.edu or (510) 987-9386

For technical help with online grant submission contact the proposalCENTRAL Help Desk: pcsupport@altum.com or (800) 875-2562 (Monday-Friday from 8:30am - 5:00pm EST)