

What do you feel are the major concerns facing the citizen science community?

We are the founders of a revolution in how science is conducted. Yet, the definition and brand of citizen science is amorphous. As exciting as it is to those of us in the know, we still have major obstacles to overcome in communicating and proving ourselves if we wish to truly take this revolution to the people. This may seem innocuous, but it is a major concern when communicating what we do, why we do it and who we do it for to the public, to scientists as potential practitioners and to funders. Therefore, defining and branding citizen science is needed to see more effective growth and inclusion – both in numbers and diversity – as well as stature as a scientifically sound entity in which to invest time and money. In this way, how we define ourselves and how we communicate becomes a foundation necessary to get more scientists on board (thus expanding the slice of the research pie that includes citizen science), more people participating as citizen scientists, and for these dedicated volunteers to see real results from their time and efforts.

What skills and what types of experience would you bring to the CSA board? (If you self-nominated, this can be similar to what you wrote in the initial form.)

First and foremost, I am a practitioner of citizen science- it is the life blood of our research in the Genetics of Taste Lab, and I am dedicated to seeing citizen science succeed.

- In-person citizen science participation in a human genetics lab, I've directly overseen hundreds of citizen scientists
- Authored numerous peer-reviewed publications, including co-authoring with citizen scientists, and have received national and international press coverage and accolades.
- History of successful funding through the National Institutes of Health, submitted and scored excellent on a current proposal to study the educational benefits of citizen science (anxiously awaiting decision!)
- I bring brand recognition to citizen science: featured in books, print-based news, radio (e.g. Colorado Public Radio), television (e.g. CBS4), and online (e.g. PBS NewsHour)
- Active advocate of citizen science online and through social media (e.g. Scistarter, #CitSciChat)

Second, I am a sought after and honored science communicator, and bring an expertise in both public science communication and informal science education

- Speak to over 10,000 people a year at education programs and as an invited speaker
- Alumni of the Alan Alda Center for Communicating Science Program
- Invited TEDx Presenter
- Finalist for the AAAS Early Career Award for Public Engagement with Science
- Editor for the Latin American Publication Initiative Scholars, publishing bilingual health science articles in print and online media

Finally, I am dedicated to serving the discipline and our community

- Reviewer for submitted abstracts for the 2015 CSA Conference

- Attended 2015 CSA Conference, budgeted to attend in 2017, and on board to support planning for this
- Invited panelist for the NIH Science Education Special Emphasis Panel
- Founding board member and education chair of the Colorado Bioscience Institute
- Advisory board for the Teen Science Scholars Program
- Proud mentor of numerous students (middle school through post-docs)

Nicole L. Garneau, Ph.D.

- 2010-present Chair of the Health Sciences Department**
Denver Museum of Nature & Science. Denver, CO
- 2010-present Director, Genetics of Taste Lab**
Denver Museum of Nature & Science. Denver, CO
- 2009-present Curator of Human Health**
Denver Museum of Nature & Science. Denver, CO
- 2009-2009 Investment Services Coordinator**
CSU Management Corporation. Fort Collins, CO
- 2009-2009 MicroRx, Company Promotions**
CSU Ventures, Inc. Fort Collins, CO
- 2008-2009 Technology Transfer Internship**
Colorado State University Research Foundation. Fort Collins, CO
- 2007-2009 Co-Founder / Silent Partner**
Alexandra's Baggage, LLC. Fort Collins, CO
- 2003-2004 Product Ambassador / In-Field Marketing**
Pierce Promotions. Portland, ME
- 2000-2001 Assistant Research Scientist**
PTC Therapeutics, Inc. South Plainsfield, NJ
- 1999-2003 Research Assistant**
Peltz Laboratory, University of Medicine and Dentistry of NJ. New Brunswick, NJ

Education

- 2004-2009 Ph.D. in Microbiology, Immunology & Pathology**
Colorado State University, Fort Collins, CO
The Role of Cellular RNA Decay Pathways in Sindbis Virus Infection
- 1999-2003 B.A. in Genetics and Microbiology, Comparative Literature**
Rutgers, The State University of New Jersey, New Brunswick, NJ

Awards, Honors and Certifications

- **2015, Workshop Participant**, Alan Alda Center for Communicating Science
- **2013 & 2014, Invited Expert**, SAVOR: An American Craft Beer & Food Experience
- **2013, Impact Denver Recipient**, Denver Metro Chamber of Commerce
- **2012 Volunteer of the Year**, *Colorado Bioscience Association*
- **2012 Nominee**, *Denver Business Journal* Forty under 40 Award
- **2010 & 2012 Finalist**, American Association for the Advancement of Science Early Career Award for Public Engagement with Science
- **2010 Corporate Recognition Award**, Michelle Obama's Let's Move Campaign sponsored *Apps for Healthy Kids*, Team Award for "Hungry Hiker Build-a-Meal" computer application.
- **2008 Recipient**, Postgraduate International Travel Grant to Melbourne, Australia, jointly awarded by the American and Australian Societies for Microbiology
- **2005-2009 Recipient**, United States Department of Agriculture CSREES Training Grant 2005-38420-15813
- **1999 State Representative (Maine)**, NSF *National Youth Science Camp*

Selected Peer-Reviewed Publications

Please visit Google Scholar for a comprehensive list and for citation indices:

<http://scholar.google.com/citations?user=8iCjlewAAAAJ&hl=en>

- *Boxer, E.E & **N.L. Garneau**. "[Rare haplotype of the gene TAS2R38 confers bitter taste sensitivity in humans.](#)" SpringerPlus. 2015, 4:505 doi:10.1186/s40064-015-1277-z
- Tucker, R.M., Nuessle, T.M., **Garneau, N.L.**, Smutzer, G., Mattes, R.D. "[No difference in perceived intensity of linoleic acid in the oral cavity between obese and non-obese adults.](#)" Chemical Senses. 2015, Vol 40, 557–563 doi:10.1093/chemse/bjv040
- Nuessle, T. M., **Garneau, N. L.**, Sloan, M. M., Santorico, S. A. "[Denver Papillae Protocol for Objective Analysis of Fungiform Papillae.](#)" J. Vis. Exp. (100), doi:10.3791/52860. 2015.
- **Garneau, N.L.**, T.M. Nuessle, M.A. Sloan, S.A. Santorico, B.C. Coughlin, J.E. Hayes. "[Crowdsourcing taste research: genetic and phenotypic predictors of bitter taste perception as a model.](#)" Frontiers in Integrative Neuroscience. May 2014. doi:10.3389/fnint.2014.00033
- **Garneau, N.** and B. Hostetler. "The Amazing Incredible YOU in Expedition Health." *Museums & Social Issues: A Journal of Reflective Discourse-Wellness*. 2010. 5(2): 264-268.
- Sokoloski KJ., A.M. Dickson, E.L. Chaskey, **N.L. Garneau**, C.J. Wilusz and J. Wilusz. "Sindbis Virus Usurps the Cellular HuR Protein to Stabilize Its Transcripts and Promote Productive Infections in Mammalian and Mosquito Cells." *Cell Host Microbe*. 2010 Aug 19;8(2):196-207.
- **Garneau, N.L.**, C.J. Wilusz and J. Wilusz. "In Vivo Analysis of the Decay of Transcripts Generated by Cytoplasmic RNA Viruses." *Methods in Enzymology*. 2008;449:97-123.
- **Garneau, N.L.**, K.J. Sokoloski, M. Opyrchal, C.P. Neff, C.J. Wilusz and J. Wilusz. "The 3' Untranslated Region of Sindbis Virus Represses the Deadenylation of Viral Transcripts in Mosquito and Mammalian Cells." *Journal of Virology*. 2008 Jan;82(2):880-92.
- **Garneau, N.L.**, J. Wilusz and C.J. Wilusz. "The highways and byways of mRNA decay." *Nature Reviews: Molecular Cell Biology*. 2007 Feb;8(2):113-26.

*Co-authored with citizen scientist

Selected Abstracts from Professional Meetings

- **Garneau, N.L.** A novel model of citizen science to build health literacy within our community. Citizen Science 2015, inaugural conference of the Citizen Science Association. 1(p13). San Jose, CA.
- **Garneau, N.L.** Crowdsourcing Science. 2013 American Society for Microbiology Annual Conference for Science Educators. Englewood, CO. May, 2013.
- **Garneau, N.L.**, & T. Derr. Statistical Analysis of Factors Previously Described as Significant in the Ability to Taste Propylthiouracil Yields Roles for Age, Sex and Tas2r38 Haplotype, but not Fungiform Papillae Density. 2013 Annual Meeting of the Association for Chemoreception Sciences. 35(p121). Huntington Beach, CA.
- **Garneau, N.L.**, M. Sloan, T. Derr, B. Hostetler, P. McNamara & B. Coughlin. Genetics of Taste: A Flavor for Health-- Community Lab and Education Programs. 2012 NIH SciEd Annual Conference for Science Education Projects. Bethesda, MD. May, 2012.
- Shanahan, S. and **N. Garneau**. Association between PROP-Sensitivity and Health Factors Including Smoking and Body Fat Percentage in Adult Men and Women. 2011 Annual Meeting of the Association for Chemoreception Sciences. 33(19). St. Pete Beach, FL.

- Grudis, J., **N.L. Garneau**, M. Sloan, S. Nicholson-Dykstra, C. Sheldon and B. Coughlin. Community-Based Participatory Research in a Museum Setting. SEPA 2010: Annual NCRR Science Education Partnership Award Conference. Birmingham, AL. April, 2010.

Selected Popular Science Articles

- **Garneau, N.** and Koons, M. "The Making of Maya Beer." *Catalyst*. Aug/Sept 2014: 6-7.
- **Garneau, N.** "A bet, a beer and Archaeochemistry." www.dmns.org/genetics. May 2014.
- **Garneau, N.** "Human Plastinated Slices." *Catalyst*. Oct/Nov 2013: 8-9.
- **Garneau, N.** and B. Hostetler. "Behind the Glass in Lab Central." *Catalyst*. April/May 2012: 6.
- **Garneau, N.** "How would you define edible?" www.dmns.org/genetics. February 2012.
- **Garneau, N.** "Sour on the High Seas." *Catalyst*. August/September 2011: 12.
- **Garneau, N. and B. Coughlin.** "A Taste of DNA." *Member Magazine*. Denver Museum of Nature & Science. April/May:6-7. 2010.

Professional Memberships

2014-present	Citizen Science Association
2014-present	American Society of Brewing Chemists
2014-2015	Society for the Study of Ingestive Behaviors
2010-present	American Association for the Advancement of Science (AAAS)
2009-2014	Association for Chemoreception Sciences (AChemS)
2007-present	Colorado Bioscience Association
2004-present	American Society for Microbiology (ASM)

Community Memberships

2014-present	Cole Neighborhood Association
2011-present	Colorado State University Alumni Association
2011-present	Denver Film Society
2011-2014	North City Park (Skyland) Civic Association
2010-present	Museum of Contemporary Art Denver
2009-present	Denver Museum of Nature & Science
2009-present	Achievement Rewards for College Scientists (ARCS), Colorado Chapter
2007-present	Denver Art Museum
2003-present	Rutgers Alumni Association
2001-2003	All Children's Charity Association, Rutgers College, New Brunswick, NJ

Service to Profession and Community

2015-present	Editor Latin American Publication Initiative (bilingual), Center for Global Health University of Colorado Anschutz Medical Campus
2014-present	Advisory Board Fermentation Science Program, Colorado State University
2014-present	Advisory Board Teen Science Scholars (Diversity Internship Program)
2013-2014	Director Teen Science Scholars (Diversity Internship Program)
2013-present	Bioscience Advisory Board University of Colorado Anschutz Medical Campus

2013-present	Adjoint Appointment Anatomy Program of the Cell and Developmental Biology Department University of Colorado, Anschutz Medical Campus
2013-present	Adjoint Appointment Department of Integrative Biology University of Colorado, Denver Campus
2012-present	Board of Directors Colorado Bioscience Institute 501(c)3
2011-present	Chair Education Committee, Colorado BioScience Association

Selected List of Invited Speaking Engagements

- **American Society for Brewing Chemists, Regional Meeting.** "A Taste of Crowdsourcing Science: Developments in Taste Research using Citizen Science." Fort Collins, CO. 08/2015
- **Great American Beer Festival, So You Want to Be a Judge.** "The Science of Flavor." Denver, CO. 10/2014.
- **Rocky Mountain Virology Association, Annual Meeting.** "A Taste of Crowdsourcing." Pingree Park, CO. 10/2014.
- **Mile High TEDx.** "[On the Trail of the Sixth Taste.](#)" Denver, CO. 4/2014
- **American Society for Microbiology, Conference for Undergraduate Educators.** "Crowdsourcing Science." Englewood, CO. 5/2013.
- **Rocky Mountain Taste and Smell Center.** "Genetics of Taste." Aurora, CO. 10/ 2012.
- **Colorado Legacy Foundation, 2012 Healthy Schools Summit and Luncheon.** "The Taste of Health." Denver, CO. 4/2012.
- **Monell Chemical Sciences Center.** Philadelphia, PA. "Population Genetics in a Community-Based Museum Laboratory." 4/2012.
- **Arapahoe Community College.** Littleton, CO. "Science is Women's Work." 3/2012.
- **Museum of Contemporary Art Denver's Mixed Taste Summer Series.** Denver, CO. "Nikola Tesla and Scurvy." 7/2011.
- **Rocky Mountain Regional Neuroscience Group, Annual Meeting.** Aurora, CO. "Citizen-Science in Chemoreception." 4/2011.
- **USDA Regional Directors Meeting.** Denver, CO. "Nutrition in Expedition Health at the Denver Museum of Nature & Science." 1/2011.
- **Centennial Canoe Outfitters Inc.** Dominguez Canyon Wilderness Area, CO. "Survival: Sensory Perception." 8/2010.
- **Colorado Avalanche in support of The Children's Hospital Colorado Team Fit.** Denver, CO. "A Guide for Future Superstars." 4/2010.

Selected Media Appearances and "Featured In"

- [We Have the Technology: How Biohackers, Foodies, Physicians, and Scientists Are Transforming Human Perception, One Sense at a Time.](#) Platoni, K. Basic Books. 2015.
- [Beer Pairing: The Essential Guide from the Pairing Pros.](#) Herz & Conley. Voyageur Press. 2015.
- [Colorado Matters, Colorado Public Radio.](#) Dukakis, A. "Is Bacteria The Reason For Your Sweet Tooth?" (11/2015)
- [The Now.](#) Hendrickson, M. "Power of Poison Exhibit." (7/2015)

- [CBS4](#). Hoffacker, D. "Power of Poison Exhibit Shows Venom in Our Everyday Lives." (07/2015)
 - [Front Range Focus, 850 KOA](#). Hart, R. "Power of Poison." (07/2015)
 - [KUNC](#). Ogburn, S. "Is Fat The Sixth Taste? Denver Museum Goers Help Scientists with Mystery." (03/2015)
 - [CBS4](#). Gionet, A. "Girls & Science Aims To Change Thinking About Careers." (02/2015)
 - [Stuff.co.nz: Food & Wine](#). Griggs, G. "Don't like hoppy beers? Don't give up." (02/2015)
 - [Westword](#). Taufen, A. "Flavorful Journey: A Night of Spices on the Silk Road." (02/2015)
 - [5280, Table Talk](#). Maybach, C. "The Amazing Science Behind Your Personal Tastes: Learning Through Beer and Chocolate." (11/2014)
 - [Colorado Craft Beer Show, AM760 Progressive Talk Radio](#). Turk, J. "Beer and Chocolate." (11/2014)
 - [CraftBeer.com](#). Sparhawk, A. "Are You Genetically Programmed to Hate Hoppy Beer?" (11/2014)
 - [Colorado Public Radio](#). Denerstein, B. "How accurate is that 'Alien?' Denver scientists head to the movies." (7/2014)
 - [IM'UNIQUE](#). Oswego Productions. "A healthy world where all people are inspired, united and unique." (6/2014)
 - [Cuisine of Loneliness](#). Cole, C.A. "The Blue Tongue Project: Finding Inspiration at the Denver Museum of Nature and Science" (6/2014)
 - [Hispanic Business](#). "Denver Museum of Nature & Science Scientist Challenges Supertaster Phenomenon," (6/2014)
 - [Medical News Today](#). "Researchers challenge scientific theory with the help of citizen scientists." (5/2014)
 - [Daily Mail Online](#) (UK). Macrae, F. "Bumpy tongue? It doesn't make you a top taster: How whether we like spicy or bitter foods is actually determined by our genes." (5/2014)
 - [BioCompare](#). "Citizens Help Researchers to Challenge Scientific Theory." (5/2014)
 - [Science Daily](#). "Supertasters do not have particularly high density of taste buds on tongue, crowdsourcing shows. (5/2014)
 - [redOrbit](#). Smith, B. "Taste Receptor Gene Determines How Well We Sense Food." (5/14)
 - [The Independent](#). Connor, S. "Taste has nothing to do with the bumpiness of your tongue, say scientists." (5/2014)
- *please note, the article incorrectly identifies Museum guests that participated in the research study as "citizen scientists." This term has a very specific meaning representing volunteers that are trained to collect, prepare and process, and help analyze data. We have requested a correction with the author, but regretfully were not granted it. Therefore additional news outlets that indexed this story are not captured here.
- [French Tribune](#). Totolos, B. "Sensory Papillae's Density not Linked with Ability to Taste Certain Kind of Bitter Components." (5/2014)
 - [MedicalPress](#). "Citizens help researchers to challenge scientific theory." (5/2014)
 - [MileHighTEDx](#). Faktorow, S. "Speaking at TEDxYouth@MileHigh: An Insider's Perspective." (5/2014)

- [SciStarter.com](#). Murphy-Niedziela, M. & Bui L. "The Genetics of Taste: A Sixth Taste?" (2/2014)
- [MEDILLreports](#). Actman, J. "Link between genes and a taste for fatty acids." (2/2014)
- [StudentScience](#). Brookshire, B. "Using citizen science to find a new taste." (12/2013)
- [NewsSentinel](#). Slaby, M.J. "Purdue professor works to determine if fat is 6th taste sense." (11/2013)
- [Westword](#). Hemmert, N. "Denver Museum of Nature and Science on the hunt for a sixth taste sense." (11/2013)
- [9NEWS](#). Dyer, K. "Science on tap: the science behind beer." (7/2013)
- [5280, Beer](#). Hausheer, J. "Science on Tap: Denver Beer Co. Serves a Brew Made from the Wilds of City Park. Really." (7/2013)
- [Conoce Colorado](#). Guzmán, J. "Visita al museo de Ciencias Naturales de Denver." (7/2013)
- Northglenn-Thornton Sentinel. "DMNS role in healthcare showcased in national report." (7/2013)
- [Westword](#). Shikes, J. "The DMNS and Denver Beer Co conduct a wild brewing experiment with City Park yeast." (6/2013)
- [Microbes Rule!](#) Martin, M. "ASMCUE, Citizen Science, and a Surprise!" (5/2013)
- [Total Health Blog](#). Eytan, T. "Participation in Science, too – at the Denver Museum of Nature and Science." (2/2012)
- [5280 Magazine](#). Sukin, G. "Citizen Scientist." (1/2013)
- [Denver Post](#). Davidson, J. "A Night in Pompeii benefits Denver Museum of Nature & Science." (11/2012)
- [Denver Post, YourHub](#). Wilbanks, C. "Expedition Health at Denver Museum of Nature and Science." (6/2012)
- [University of Colorado, Newsroom](#). "Our Own Science Guy." (1/2012)
- [Colorado Bioscience Institute](#). (12/2012)
- Denver Business Journal. "Congratulations to our 2012 Forty under 40 Nominees." February 10-16, 2012. A24.
- American Society for Microbiology Microbe Magazine. "International Affairs: Millis-Colwell Exchange Program." 11(6):505. 2011.
- [Denver Westword Blogs](#). Klosowski, T. "We talk with the DMNS Curator of Health Sciences about Gattaca." (4/2011).
- [PBS Newshour](#) Online. Jacobson, R. "The Bitter Taste of Genetics." (12/2010)
- [Around the Oval](#). Etter, B. "A Bitter Taste in the Mouth." Winter 2010: 6.
- Rocky Mountain PBS. "[Genetics of Taste](#)." Aired numerous times 2010-present.