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Curriculum Vitae

Personal Data

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Education

School	Department	Year	Degrees
MIT	Biology	1968	BS (biophysics)
MIT	EECS	1980	MS, EE
MIT	EECS	1985	PhD

Brief Biography

Stephanie Seneff is a Senior Research Scientist at MIT's Computer Science and Artificial Intelligence Laboratory. She has a bachelor's degree in biology with a minor in food and nutrition, and a master's degree, an engineer's degree and a PhD in electrical engineering and computer science, all from MIT. Throughout her career, Dr. Seneff has conducted research in diverse areas, including human auditory modeling, spoken dialogue systems, natural language processing, information retrieval and summarization, and computational biology, among others. She has published over 200 refereed articles in technical journals and conference proceedings on these subjects and has been invited to give several keynote speeches. Since 2008, Dr. Seneff has become interested in the effect of drugs, toxic chemicals and diet on human health and disease, and she has written and spoken extensively, articulating her view on these subjects. In particular, she has authored over 40 peer-reviewed papers since 2011 relating to her theories proposing that a low-micronutrient, high-carbohydrate diet contributes to the metabolic syndrome and to Alzheimer's disease, and that sulfur deficiency, environmental toxicants, and insufficient sunlight exposure to the skin and eyes play an important role in many modern conditions and diseases, including heart disease, diabetes, gastrointestinal problems, Alzheimer's disease and autism. She has identified the herbicide glyphosate as being a major contributor to the alarming rise we are witnessing recently in multiple autoimmune, oncological, metabolic and neurological diseases. In July 2021, her book on glyphosate, titled "Toxic Legacy: How the Weedkiller Glyphosate is Destroying Our Health and the Environment," was released by Chelsea Green publishers. This book was selected by Kirkus Reviews as one of the best non-fiction books of 2021. Her most recent interests have focused on understanding the toxic mechanisms of the SARS-CoV-2 mRNA vaccines.

Work Experience

2010-Present: Senior Research Scientist, Spoken Language Systems Group, MIT Computer Science and Artificial Intelligence Laboratory

Developed computer algorithms to extract summary information from collections of research documents in the biology and medical domains. Analyzed online medical databases and consumer-provided health information to discover trends in health and disease. Conducted research to advance the understanding of the underlying disease process associated with various autoimmune diseases, especially autism and cardiovascular disease. Conducted research to characterize the specific insidious mechanism by which the herbicide glyphosate causes a diverse range of debilitating diseases.

1993-2010: Principal Research Scientist, Spoken Language Systems Group MIT Computer Science and Artificial Intelligence Laboratory (formerly Laboratory for Computer Science).

1989-1993: Research Scientist, Spoken Language Systems Group MIT Laboratory for Computer Science

Developed computational models for speech understanding systems, including speech recognition, syntax, semantics, discourse, and dialogue components. Designed a trainable, probabilistic graph-based parsing framework to robustly capture the meaning of spoken utterances. Developed interactive spoken dialogue systems for a number of different realistic applications. Developed models for context resolution and response planning with the goal of domain independence and portability. Developed interactive gaming systems to enable a student to learn a foreign language in an entertaining way.

1985-1989: Research Scientist, Speech Communication Group, MIT Research Laboratory of Electronics

Developed several components of a speech understanding system as part of a large effort funded by the Defense Advance Research Projects agency (DARPA). At the acoustic phonetic level, developed an improved version of the auditory model proposed in the doctoral thesis, which has been used extensively by other members of the speech group and by others in the research community outside of MIT.

1968-1978: Research Staff, MIT Lincoln Laboratory

Worked on several topics related to computer speech processing, including synthesis, vocoders, and speech recognition. Implemented real-time vocoder algorithms including Adaptive Predictive Coding (APC) and cepstral vocoders on specialized microprocessors built in house. As part of the ARPA Speech Understanding Project, developed new algorithms for extracting formants and fundamental frequency from the speech signal.

Selected Recent Publications

1. AM Kyriakopoulos, G Nigh, PA McCullough, S Seneff. Mitogen Activated Protein Kinase (MAPK) Activation, p53, and Autophagy Inhibition Characterize the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Spike Protein Induced Neurotoxicity. *Cureus* 2022;14(12):e32361.
2. AM Kyriakopoulos, PA McCullough, G Nigh and S Seneff. Potential Mechanisms for Human Genome Integration of Genetic Code from SARS-CoV-2 mRNA Vaccination: Implications for Disease. *J Neurol Disord* 2022; 10: 519.
3. S Seneff, G Nigh, A M Kyriakopoulos, and P A. McCullough. Innate immune suppression by SARS-CoV-2 mRNA vaccinations: The role of G-quadruplexes, exosomes, and MicroRNAs. *Food and Chemical Toxicology* 2022;164:113008.
4. S Seneff and G Nigh. Worse Than the Disease? Reviewing Some Possible Unintended Consequences of the mRNA Vaccines Against COVID-19. *International Journal of Vaccine Theory, Practice, and Research* 2(1): 38-79.
5. S Seneff and G Nigh. Sulfate's Critical Role for Maintaining Exclusion Zone Water: Dietary Factors Leading to Deficiencies. *Water* 2019; 11: 22-42.
6. S Gunatilake, S. Seneff and L. Orlando. Glyphosate's Synergistic Toxicity in Combination with Other Factors as a Cause of Chronic Kidney Disease of Unknown Origin. *Int J Environ Res Public Health* 2019; 16(15).
7. S. Seneff and L.F. Orlando. Glyphosate substitution for glycine during protein synthesis as a causal factor in Mesoamerican Nephropathy. *J Environ Anal Toxicol* 2018, 8:1.
8. S. Seneff and L.F. Orlando. Is glyphosate a key factor in Mesoamerican Nephropathy? *J Environ Anal Toxicol* 2018, 8:1.
9. S. Seneff and G. Nigh. Glyphosate and anencephaly: Death by a thousand cuts *J Neurol Neurobiol* 2017 3(2).
10. S. Seneff, NJ Causton, GL Nigh, G Koenig, D Avalon. Can glyphosate's disruption of the gut microbiome and induction of sulfate deficiency explain the epidemic in gout and associated diseases in the industrialized world? *Journal of Biological Physics and Chemistry* 2017; 17: 53–76.
11. A. Samsel and S. Seneff. Glyphosate pathways to modern diseases VI: Prions, amyloidoses and autoimmune neurological diseases. *Journal of Biological Physics and Chemistry* 2017;17:8-32.
12. D. Kennedy, S. Seneff, R.M. Davidson, J.W. Oller, Jr., B.E. Haley and R.D. Masters. Environmental Toxicants and Infant Mortality in America. *Peertechz J Biol Res Dev* 2016; 1(1): 036-061.
13. S. Seneff, W. Morley, M.J. Hadden and M.C. Michener. Does glyphosate acting as a glycine analogue contribute to ALS? *J Bioinfo Proteomics Rev* 2016: 2(3): 1-21.
14. A. Samsel and S. Seneff, Glyphosate Pathways to Modern Diseases V: Amino Acid Analogue of Glycine in Diverse Proteins. *J Biol Phys Chem* 2016; 16: 9-46.
15. N.L. Swanson, J. Hoy and S. Seneff, Evidence that glyphosate is a causative agent in chronic sub-clinical metabolic acidosis and mitochondrial dysfunction. *International Journal of Human Nutrition and Functional Medicine* 2016; 4: 32-52.
16. A. Samsel and S. Seneff, Glyphosate, pathways to modern diseases IV: cancer and related pathologies, *J Biol Phys Chem* 2015, 15:121-159.
17. S. Seneff, N. Swanson, C. Li and G. Koenig, Death as a Drug Side Effect in FAERS: Is Glyphosate Contamination a Factor? *Agricultural Sciences* 2015;6:1472-1501.
18. J.E. Beecham and S. Seneff, Is there a link between autism and glyphosate-formulated herbicides? *J Autism* 2016;3:1.
19. A. Samsel and S. Seneff, Glyphosate, pathways to modern diseases IV: cancer and related pathologies, *Journal of Biological Physics and Chemistry* 2015, 15:121-159.

20. J.E. Beecham and S. Seneff, The possible link between Autism and Glyphosate Acting as Glycine Mimetics: a review of evidence from the literature with analysis, *Journal of Molecular and Genetic Medicine* 2015, 9:4.
21. G. Koenig and S. Seneff, Gamma-Glutamyltransferase: A Predictive Biomarker of Cellular Antioxidant Inadequacy and Disease Risk, *Disease Markers* 2015 (2015), Article ID 818570.
22. S. Seneff, R.M. Davidson, A. Lauritzen, A. Samsel, and G. Wainwright, A Novel Hypothesis for Atherosclerosis as a Cholesterol Sulfate Deficiency Syndrome, *Theoretical Biology and Medical Modeling*, 2015, 12:9.
23. J. Hoy, N. Swanson and S. Seneff, The high cost of pesticides: Human and animal diseases, *Poultry Fisheries Wildlife Sciences*, 2015;3:1.
24. A. Samsel and S. Seneff, Glyphosate, pathways to modern diseases III: Manganese neurological diseases, and associated pathologies, *Surgical Neurology International* 2015, 6:45.
25. C.A. Shaw, S. Seneff, S.D. Kette, L. Tomljenovic, J.W. Oller Jr., and R.M. Davidson. Aluminum-Induced Entropy in Biological Systems: Implications for Neurological Disease, *Journal of Toxicology* 2014, Article ID 491316.
26. S. Seneff, N. Swanson, and C. Li, Aluminum and Glyphosate Can Synergistically Induce Pineal Gland Pathology: Connection to Gut Dysbiosis and Neurological Disease. *Agricultural Sciences* Jan. 12, 2015, 6, 42-70.
27. W.A. Morley and S. Seneff, Diminished brain resilience syndrome: A modern day neurological pathology of increased susceptibility to mild brain trauma, concussion, and downstream neurodegeneration. *Surgical Neurology International* 2014, 5:97.
28. A. Samsel and S. Seneff, Glyphosate, Pathways to Modern Diseases II: Celiac Sprue and Gluten Intolerance. *Interdiscip Toxicol.* 2013; Vol. 6(4): 159184.
29. C.A. Shaw, S.D. Kette, R.M. Davidson, and S. Seneff. Aluminum's role in CNS-immune system interactions leading to neurological disorders. *Immunome Res* 2013, 9: 069.
30. R.M. Davidson, A. Lauritzen and S. Seneff, Biological Water Dynamics and Entropy: A Biophysical Origin of Cancer and Other Diseases, *Entropy* 2013, 15(9), 3822-3876.
31. A. Samsel and S. Seneff, Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases, *Entropy* 2013, 15, 1416-1463.
32. S. Seneff, A. Lauritzen, R. Davidson, and L. Lentz-Marino. Is Encephalopathy a Mechanism to Renew Sulfate in Autism? *Entropy* 2013, 15, 372-406.
33. S. Seneff, A. Lauritzen, R. Davidson, and L. Lentz-Marino. Is Endothelial Nitric Oxide Synthase a Moonlighting Protein Whose Day Job is Cholesterol Sulfate Synthesis? Implications for Cholesterol Transport, Diabetes and Cardiovascular Disease, *Entropy* 2012, 14, 2492-2530.
34. J. Liu, S. Seneff, and V. Zue, Harvesting and Summarizing User-Generated Content for Advanced Speech-Based Human-Computer Interactions, *IEEE Journal of Selected Topics in Signal Processing*, 6(8), 982-992, 2012.
35. S. Seneff, R. M. Davidson and J. Liu, Is Cholesterol Sulfate Deficiency a Common Factor in Preeclampsia, Autism, and Pernicious Anemia? *Entropy* 2012, 14, 2265-2290.
36. S. Hartzell and S. Seneff, Impaired Sulfate Metabolism and Epigenetics: Is There a Link in Autism? *Entropy* 2012, 14, 1953-1977.
37. R.M. Davidson, and S. Seneff, The Initial Common Pathway of Inflammation, Disease, and Sudden Death, *Entropy* 14, 1399-1442, 2012.
38. S. Seneff, L. Mascitelli, and R. Davidson, Might cholesterol sulfate deficiency contribute to the development of autistic spectrum disorder?, *Medical Hypotheses*, 8, 213217, 2012.

39. S. Seneff, G. Wainwright, and L. Mascitelli, Nutrition and Alzheimer's Disease: the Detrimental Role of a High Carbohydrate Diet, *European Journal of Internal Medicine*, Vol. 22 No.2, pp. 134-40, Apr 2011.
40. S. Seneff, G. Wainwright, and L. Mascitelli. Is the metabolic syndrome caused by a high fructose, and relatively low fat, low cholesterol diet? *Archives of Medical Science*, Vol. 7, No. 1, pp. 8-20, 2011.