

TABT Updates and URLs of the Week

May 2017

Item 1 – Professional Communications & Networking

Review Proposals for CAST

STAT needs your help. We need proposal reviewers to grade proposals to ensure that this CAST is the best it can be. The grading process starts next week. Proposal reviewer link: <http://www.statweb.org/?page=ProposalReview2017>

Item 2 – Science Update

Birey, Fikri, *et al.*, “Assembly of functionally integrated human forebrain spheroids”

(*Nature*, 545:7652, 04 May 2017, Pages 54-59)

The development of the nervous system involves a coordinated succession of events including the migration of neurons within the forebrain and their integration into cortical circuits. For the first time researchers generate three-dimensional spheroids from human pluripotent stem cells. The neurons functionally integrate with glutamatergic neurons to form a microphysiological system that should prove useful for studying neural development and disease.

Yin, Yimeng, *et al.*, “Impact of cytosine methylation on DNA binding specificities of human transcription factors”

(*Science*, 356:6337, 05 May 2017, Page 492-507)

When the DNA bases cytosine and guanine are next to one another, a methyl group is usually added. The result is altered DNA structure and function as well as inhibition of the binding of some transcription factors.

Item 3 – Quote of the Week

“There is no education like adversity.” – Benjamin Disraeli, political leader and writer

Item 4 – URL of the Week

Educator Exchange for Science Teachers and Engineering

Professional development and resources related to the Next Generation Science Standards www.linkengineering.org

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Item 1 – Science Update

Pritchard, Hamish, “Asia’s glaciers are a regionally important buffer against drought”

(*Nature*, 545:7653, 11 March 2017, Pages 169-174)

The high mountains of Asia have the highest concentration of glaciers globally, and 800 million people depend in part on meltwater from them, especially in years of drought. This is a well-researched analysis of where the predicted glacier loss would lead to drought-related water stress, increasing the risk of social instability and conflicts.

McGann, John P., “Poor human olfaction is a 19th-century myth”

(*Science*, 356:6338, 12 March 2017, Page 324 - 332)

I have always heard that humans have a poor sense of smell. This review dispenses the idea that originated from a 19th century anatomist’s hypothesis related to man’s evolution of free will. When anatomical data is evaluated, humans have excellent olfactory abilities that are comparable to many other mammals.

Item 2 – Quote of the Week

“How can our works and thoughts, if they are always to be the fittest, continue always the same? Change, indeed, is painful, yet ever needful.” – Thomas Carlyle, philosopher

Item 3 – URL of the Week

Zygote

Zygote provides students with a virtual lab with 3D dimensions where students can learn about dissection and human anatomy.

<http://www.zygote.com/>

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Item 1 - Professional Development Opportunity

Alpine Biological Research Workshop

Learn about responses of plants and animals to climate change, ecological research in sub-alpine meadows, behavioral ecology of yellow-bellied marmots, effects of acidification in high altitude ponds in this August 8-10 workshop hosted at the Rocky Mountain Biological laboratory in Gothic, Colorado. Contact: Mike Sipes by email at mpsipes@centurylink.net or phone: (303)237-4975. Website: <http://www.colobiota.org/>

Item 2 – Science Update

Tang, Alan T., *et al.*, “Endothelial TLR4 and the microbiome drive cerebral cavernous malformations”

(*Nature*, 545:7654, 18 May 2017, Pages 305-310)

Cerebral cavernous malformations (CCMs) are a cause of stroke and seizures. CCMs arise from the loss of an adaptor complex in brain endothelial cells. Here researchers identify endothelial Toll-like receptor 4 (TLR4) and the gut microbiome as critical stimulants of CCM formation

Thul, Peter J., *et al.*, “A subcellular map of the human proteome”

(*Science*, 356:6340, 26 May 2017, Page 820-834)

Proteins function in the context of their environment, so an understanding of cellular processes requires a knowledge of protein localization. The authors have shown that many proteins localize to multiple compartments within a single cell, and many show cell-to-cell variation in their expression patterns. Presented as an interactive database called the Cell Atlas, this work provides an important resource for ongoing efforts to understand human biology.

Item 4 – Quote of the Week

“People will forget what you said. People will forget what you did. But people will never forget how you made them feel.” – Maya Angelou, writer

Item 4 – URL of the Week

BioMedSearch

BioMedSearch is a biomedical search engine that contains NIH/PubMed documents, a large collection of theses, dissertations, and other proprietary publications not found anywhere else for free, making it one of the most comprehensive and powerful free biomedical searches.

<http://www.biomedsearch.com/>

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