

TABT Updates and URLs of the Week for February 2019

Item 1 – Professional Development Opportunity

TABT Committees and Nominations

TABT is in need of one volunteer for each of the following committees: Nominations Committee, Publications Committee, Election Committee, Long Range Planning Committee, Awards Committee, Honorary Membership Committee, and TABT Booth Committee. If you are interested in volunteering for any of these committees - or for the positions of TABT President Elect or TABT Secretary-Treasurer - please contact Claire Vollmar at vollmars@satx.rr.com.

Item 2 – Professional Networking and Communication

TABT Facebook Page

The Texas Association of Biology Teachers maintains a group page on Facebook. Please join the group and take part in additional articles posted on a weekly basis. You're sure to find something new!

Item 3 – Science Update

Takeshi Tanoue, *et al.*, “A defined commensal consortium elicits CD8 T cells and anti-cancer immunity”
(*Nature*, 565:7741, 31 January 2019, Pages 600-605)

Microorganisms in the human gut can affect immune-system cells. Gut bacterial strains have been discovered that boost immune cells that have cell-killing capacity and that can target cancer and protect against infection.

Hirofumi Toda, *et al.*, “A sleep-inducing gene, *nemuri*, links sleep and immune function in *Drosophila*”
(*Science*, 363:6426, 1 February 2019, Page 509-515)

In *Drosophila* fruit flies, a peptide helps fight infection by killing bacteria and promoting sleep.

Item 4 – Quote of the Week for 4 February 2019

“The most all penetrating spirit before which will open the possibility of tilting not tables, but planets, is the spirit of free human inquiry. Believe only in that.” Dmitri Mendeleev, *Russian chemist*

Item 5 – URL of the Week for 4 February 2019

American Society for Microbiology

The ASM website provides a number of resources for K-12 educators. Resources include open access journal articles, lesson plans, videos, images, and more.

<https://www.asm.org/Browse-By-Audience/Educator>

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TABT Recommends Our Affiliates

Texas Association of Biology Teachers (TABT) is an affiliate of both the Science Teachers Association of Texas (STAT) and the National Association of Biology Teachers (NABT). If you aren't a member of one or the other, you should give them your consideration. Both have great materials and are leaders in the field. You can find STAT at <http://www.statweb.org/> and NABT at <http://www.nabt.org/>. Check out the latest edition of the *American Biology Teacher* and its focus on Darwin and Evolution: <https://nabt.org/ABT-Online-Current-Issue>

Item 2 – Science Update

Hannah A. Grunwald, *et al.*, “Super-Mendelian inheritance mediated by CRISPR–Cas9 in the female mouse germline”

(*Nature*, 566:7742, 7 February 2019, Pages 105-109)

In the early embryo, Cas9 expressed in the female germline induces double-stranded breaks that are corrected by homology-directed repair, biasing inheritance of a desired allele in mice.

Maria Paniw, *et al.*, “Life history responses of meerkats to seasonal changes in extreme environments”

(*Science*, 363:6427, 8 February 2019, Page 631-635)

Seasonal climate changes influence meerkat demographics differently. Warming and rainfall changes in one part of the year had a negative impact on survival and persistence, whereas similar changes during another part of the year had the opposite effect.

Item 3 – Quote of the Week for 11 February 2019

“No law of nature, however general, has been established all at once; its recognition has always been preceded by many presentiments.” Dmitri Mendeleev, *Russian chemist*

Item 4 – URL of the Week for 11 February 2019

Understanding Science

UC Berkeley's Understanding Science website is a "must use" for all science teachers. It is a great resource for learning more about the process of science. The resource goes much deeper than the standard "PHEOC" model of the scientific method by emphasizing peer review, the testing of ideas, a science flowchart and "what is science?" checklist. Understanding Science also provides a variety of teaching resources including case studies of scientific discoveries and lesson plans for every grade level.

<https://undsci.berkeley.edu/>

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Item 2 – Professional Development

Research Support

We have the opportunity to support a doctoral candidate with her research. If you elect to assist her with her work you can enter to win one of twelve \$25 Amazon.com Gift Cards. You are eligible if you are a teacher for students in pre-kindergarten through 12th grade and you teach in the United States. The purpose of the survey is to gain a better understanding of the perceptions of teachers regarding factors that may influence student academic achievement. You can complete the survey in as little as 20 minutes. If you have questions about this survey or the results obtained, please contact Erica Pollock at enp@live.unc.edu.

Link: https://unc.az1.qualtrics.com/jfe/form/SV_b8e2t4QwxF8Ddxr

Item 3 – Science Update

Mark J. Ranek, *et al.*, “PKG1-modified TSC2 regulates mTORC1 activity to counter adverse cardiac stress”
(*Nature*, 566:7743, 14 February 2019, Pages 264-269)

If blood flow from the heart is impeded, the pressure created causes tissue dysfunction. It emerges that different signals converge on the TSC2 and mTOR proteins to fine-tune the response of heart cells to stress.

Maria Paniw, *et al.*, “Inferring Earth’s discontinuous chemical layering from the 660-kilometer boundary topography”

(*Science*, 363:6428, 15 February 2019, Page 736-740)

A rough boundary between Earth’s upper and lower mantle suggests partially blocked mantle circulation.

Item 4 – Quote of the Week for 18 February 2019

“If I had my life to live over again, I would have made a rule to read some poetry and listen to some music at least once every week.” Charles Darwin, *English naturalist, geologist, and biologist*

Item 5 – URL of the Week for 18 February 2019

Roots and Shoots

The American Society of Plant Biologists K-12 Roots and Shoots website provides teachers with activities that fit into existing classroom units.

<https://aspb.org/education-outreach/k12-roots-and-shoots/>

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Link: https://unc.az1.qualtrics.com/jfe/form/SV_b8e2t4QwxF8Ddxr

Item 3 – Science Update

Cameron S. McAlpine, et al., “Sleep modulates haematopoiesis and protects against atherosclerosis”

(*Nature*, 566:7744, 21 February 2019, Pages 383-387)

The link between sleep and cardiovascular disease is poorly understood. Findings in mice show that disrupted sleep causes the brain to signal the bone marrow to boost white blood cell production, damaging blood vessels.

Shuichi Hoshika, et al., “Hachimoji DNA and RNA: A genetic system with eight building blocks”

(*Science*, 363:6429, 22 February 2019, Page 884-887)

DNA that includes synthetic bases expands the genetic code from four to eight nucleotide letters.

Item 4 – Quote of the Week for 25 February 2019

“The continued existence of wildlife and wilderness is important to the quality of life of humans. Our challenge for the future is that we realize we are very much a part of the earth's ecosystem, and we must learn to respect and live according to the basic biological laws of nature.” Jim Fowler, *American zoologist and host of Mutual of Omaha's Wild Kingdom*

Item 5 – URL of the Week for 25 February 2019

Science Net Links

Science NetLinks is a project of the Directorate for Education and Human Resources Programs of the American Association for the Advancement of Science. Teachers can find hundreds of lessons, tools, collections, and data sets that are free to use in the classroom.

<http://sciencenetlinks.com/lessons/>

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