

Letter From the JCTS Editor

Translation and the Science of Networks

The task of translation is to create links between research discoveries and improved health. This ideally involves the formation of links between investigators from different fields and from different translational phases (e.g., team science). Translation also involves forming networks that engage academia, the community, industry, and government. Furthermore, clinical research now often spans multiple nodes in national and international research networks.



Lastly, the NIH CTSA program itself represents an increasingly integrated network that helps lower the barriers to effective translation. However, despite the increasing focus on the formation of networks in translational research across these multiple scales, there has been relatively little attention on how we can quantitatively study them. It is my belief that translational science can benefit tremendously from the science of networks.

As an anesthesiologist and neuroscientist interested in consciousness, the first major recruit for my research team a little more than a decade ago was a physicist with expertise in complex systems and graph theory, the mathematical formalism upon which modern network science rests. It was my hypothesis that the conscious brain optimally binds sensory and cognitive information together, and that the state of general anesthesia could be achieved by disrupting that binding process. For the past decade, I have learned the language of networks and their various properties, including path length (across the network), efficiency, modularity, small-worldness, clustering coefficient, and more. When I became a CTSA institute director almost four years ago, I was surprised to discover that my own scientific background—which did not fit within the realm of traditional translation—might be helpful in developing new methods to understand the various networks of research and researchers involved in translation.

Partnering with Felix Kabo—an architect and network researcher in the Institute for Social Research at the University of Michigan—I have been increasingly focused on applying network science to translational science institutionally and, looking toward the future, nationally. In the most current issue of [JCTS](#), we have published a new approach to measure team science and the possible influence of our own CTSA institute on the formation of networks for individual investigators. The goal in describing my journey and this study is not to highlight my own work (which, of course, underwent rigorous and independent review) but to show that JCTS can be a unique home for a wide range of novel techniques and methods that advance translation. My personal development as a neuroscientist and translational scientist has led me to a deeper understanding of networks and I am grateful that JCTS can serve as forum for all of the translational science community as we seek to better understand the various networks in which we

engage in order to turn discoveries into cures.

George A. Mashour, M.D., Ph.D.
Editor-in-Chief, Journal of Clinical and Translational Science

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JCTS's mission is to provide a forum for the rapid communication of topics of interest and relevance to the large and diverse community of clinical and translational scientists with the goal of improving the efficiency with which health needs inform research and new diagnostics, therapies, and preventive measures reach the public. The Association for Clinical and Translational Science has partnered with the American Physician Scientists Association (APSA) and the Clinical Research Forum (CRF) to support the growth and development of JCTS.

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News From the Hill

News From the Hill: May 17, 2019

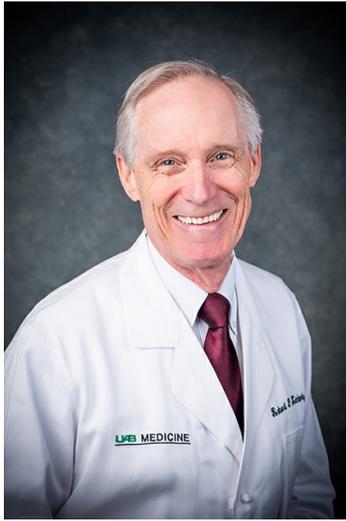
The House of Representatives has continued, largely on schedule, to advance Fiscal Year (FY) 2020 appropriations measures. The House spending bills have continued the recent trend of increasing funding for medical research and the National Institutes of Health. The House bills have also proposed significant investment in public health programs, most notably the Agency for Healthcare Research and Quality.



The Senate has not yet released its FY 2020 spending measures, but further action is expected in early June.

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Association for Clinical and Translational Science
2025 M St NW Suite 800
Washington, DC 20036
(202) 367 1119
info@actscience.org
www.actscience.org

