

FUNCTIONAL MEDICINE UPDATE

Episode 3 - June 2016

Summary Notes

In this podcast Dr. Bland interviews Rob Knight, PhD. Dr. Knight is a world-renowned expert on the human microbiome and he stands at the epicenter of emerging research on this topic. A native of New Zealand, Dr. Knight was educated there before coming to the United States to attend Princeton University, where he earned his PhD. He began his research career at the University of Colorado at Boulder. After being heavily recruited by many leading universities, Dr. Knight selected the University of California at San Diego to be the site of his laboratory in 2015.

At UC San Diego, Dr. Knight is a faculty member of the Department of Pediatrics at the School of Medicine, but he is also affiliated with the Department of Computer Sciences and Engineering. Dr. Knight has been breaking new ground in cross-disciplinary research by partnering with collaborators from a range of fields both nationally and globally. He is a co-founder of American Gut, a crowd-sourced project that relies on citizen scientists and open access tools to compile a database of information about the diversity of gut microbial communities among the American public.

Dr. Knight has an extensive, notable, and growing publication record. His research has appeared in top journals, including *Science*, *Nature Medicine*, *PLoS One*, *Cell*, and *BMJ*. Earlier this year, his work on vaginal microbial transfer in infants born by Cesarean section gained national interest and media attention. This investigative work was inspired by personal life experience—a story Dr. Knight shares in his discussion with Dr. Bland.

You can learn more about Dr. Rob Knight and his laboratory [here](#).

To view Dr. Knight's popular TED Talk, click [here](#).

Dr. Knight's book, *Follow Your Gut: The Enormous Impact of Tiny Microbes*, is available from [Amazon](#).

For more information about American Gut, visit the project's [website](#).

Dr. Rob Knight will be a speaker at the Personalized Lifestyle Medicine Institute's Fourth Annual Thought Leaders Consortium in October 2016. Dr. Bland will be hosting and facilitating this event, which will take place in Phoenix, Arizona. To view the complete program schedule and registration details, visit www.plminstitute.org. Early-bird registration pricing is available through June 30, 2016.

References

1. Knight, Robin Douglas. *The Origin and Evolution of the Genetic Code: Statistical and Experimental Investigations*. Diss. Princeton University, 2001. Web. 27 May 2016. Retrieved

from:

<http://www.ece.iit.edu/~biitcomm/research/Genetic%20Code/The%20Origin%20and%20Evolution%20of%20the%20Genetic%20Code%20Statistical%20and%20Experimental%20Investigations%20-%202001.pdf>

2. Knight, Rob and Brendan Buhler. *Follow Your Gut: The Enormous Impact of Tiny Microbes* (TED Books). New York: Simon & Schuster/TED, 2015.
3. Knight R. Why microbiome treatments could pay off soon. *Nature*. 2015 Feb 26;518(7540):S5.
4. Zeevi D, Korem T, Zmora N, Israeli D, Rothschild D, et al. Personalized Nutrition by Prediction of Glycemic Responses. *Cell*. 2015 Nov 19;163(5):1079-94.
5. Forslund K, Hildebrand F, Nielsen T, Falony G, Le Chatelier E, et al. Disentangling type 2 diabetes and metformin treatment signatures in the human gut microbiota. *Nature*. 2015 Dec 10;528(7581):262-6.
6. Ussar S, Griffin NW, Bezy O, Fujisaka S, Vienberg S, et al. Interactions between Gut Microbiota, Host Genetics and Diet Modulate the Predisposition to Obesity and Metabolic Syndrome. *Cell Metab*. 2015 Sep 1;22(3):516-30.
7. Zhu W, Gregory JC, Org E, Buffa JA, Gupta N, et al. Gut Microbial Metabolite TMAO Enhances Platelet Hyperreactivity and Thrombosis Risk. *Cell*. 2016 Mar 24;165(1):111-24.
8. Hsiao EY, McBride SW, Hsien S, Sharon G, Hyde ER, et al. The microbiota modulates gut physiology and behavioral abnormalities associated with autism. *Cell*. 2013 Dec 19;155(7):1451-1463.
9. Bravo JA, Forsythe P, Chew MV, Escaravage E, Savignac HM, et al. Ingestion of Lactobacillus strain regulates emotional behavior and central GABA receptor expression in a mouse via the vagus nerve. *Proc Natl Acad Sci U S A*. 2011 Sep 20;108(38):16050-5.
10. Sharon G, Garg N, Debelius J, Knight R, Dorrestein PC, Mazmanian SK. Specialized metabolites from the microbiome in health and disease. *Cell Metab*. 2014 Nov 4;20(5):719-30.
11. Mayer EA, Knight R, Mazmanian SK, Cryan JF, Tillisch K. Gut microbes and the brain: paradigm shift in neuroscience. *J Neurosci*. 2014 Nov 12;34(46):15490-6.
12. Neuman H, Debelius JW, Knight R, Koren O. Microbial endocrinology: the interplay between the microbiota and the endocrine system. *FEMS Microbiol Rev*. 2015 Jul;39(4):509-21.
13. Rosenbaum M, Knight R, Leibel RL. The gut microbiota in human energy homeostasis and obesity. *Trends Endocrinol Metab*. 2015 Sep;26(9):493-501.
14. Eilam O, Zarecki R, Oberhardt M, Ursell LK, Kupiec M, et al. Glycan degradation (GlyDeR) analysis predicts mammalian gut microbiota abundance and host diet-specific adaptations. *MBio*. 2014 Aug 12;5(4). pii:e01526-14.
15. Org E, Parks BW, Joo JW, Schwartzman W, Kang EY, et al. Genetic and environmental control of host-gut microbiota interactions. *Genome Res*. 2015 Oct;25(10):1558-69.
16. Dominguez-Bello MG, De Jesus-Laboy KM, Shen N, Cox LM, Amir A, et al. Partial restoration of the microbiota of cesarean-born infants via vaginal microbial transfer. *Nat Med*. 2016 Mar;22(3):250-3.

The information given and discussed in these materials is for research and education purposes only and is not intended to prescribe treatment.