

# Bringing Chemistry to Life podcast series

ThermoFisher  
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Season 2: The 2020 C&EN's Talented 12  
Episode 2: Why do things happen where they do?



## Episode abstract

Laura-Isobel McCall is a chemical cartographer. She has a fundamental question: why are responses to an external stimulus, such as a pathogen, different depending on the organ, tissue and even different areas of the same tissue?

Her curiosity and talent for working at the interface between scientific disciplines led her to develop innovative ways to build three-dimensional maps of the chemical interaction between parasites, microbes and host organisms. This is what is defined as chemical cartography and it allows us to understand complex interactions and interplay of host and pathogen metabolism.

This episode explores the complex relationship between living organisms and the environment around them. A deep understanding of the metabolic response to exogenous chemicals can ultimately enable the design of better drugs but also generates a new set of ethical questions. Metabolomics, or each person's chemical map, not only define who we are (like genomics does), but also what we have done, and what we have been in contact with over the course of our lives.

## About our guest

### Laura-Isobel McCall, PhD

Assistant Professor, Department of Chemistry & Biochemistry, University of Oklahoma

Laura-Isobel's group site:  
<http://mccall-lab.oucreate.com/>

C&EN Talented 12 profile of Laura-Isobel:  
<https://cen.acs.org/biological-chemistry/infectious-disease/Laura-Isobel-McCall/98/i31>

## Recent Publications from Laura-Isobel:

- [Alterations to the Cardiac Metabolome Induced by Chronic \*T. cruzi\* Infection Relate to the Degree of Cardiac Pathology](#)
- [Mapping of host-parasite-microbiome interactions reveals metabolic determinants of tropism and tolerance in Chagas disease](#)
- [Quo vadis? Central Rules of Pathogen and Disease Tropism](#)
- [Home chemical and microbial transitions across urbanization](#)

## Laura-Isobel's Content Recommendations:

- [Molecular cartography of the human skin surface in 3D](#) (a paper by Bouslimani, et al.)
- [The Chagas Coalition](#) (a website about Chagas disease and the fight for innovation to control it)
- [A Doctor's Dream: A pill for sleeping sickness](#) (a DNDi short film)
- [How to Survive a Plague: The Inside Story of How Citizens and Science Tamed AIDS](#) (a book by David France)
- [A Crack in Creation: Gene Editing and the Unthinkable Power to Control Evolution](#) (a book by Jennifer Doudna & Samuel Sternberg)

This podcast series is available via the following links



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