Title of Educational Session:
CRISPR IMAGES - SYNTHETIC BIOLOGY MEETS MOLECULAR IMAGING

TOPICS COVERED:
1. Delivered vs. home-brewed - the advantages and challenges of genetically controlled contrast agents
2. What can reporter genes not report on? - from cell type to cell function
3. How would nature make a reporter protein? - directed evolution vs. ‘rational’ design
4. How smart are contrast agents compared to cells? - from promoters and logic circuits
5. Outnumbered by consortia of smart bacteria? - Bacterial imaging from infectious diseases to cancer
6. Gene and/or cell therapy and the urgent need for molecular imaging
7. Seeing what you are doing - reading out and talking back with cellular precision

LEVEL (1-10; from very basic to very advanced): 4

TARGET GROUP:
Researchers who are interested in learning more about how biology can be altered to ‘report’ to our imaging instruments in order to guide tissue engineering, as well as future gene and cell therapy.

PREVIOUS KNOWLEDGE:
Basics of molecular biology

USEFUL ARTICLES:
- Teague, B.P. & Weiss, R., 2015. SYNTHETIC BIOLOGY. Synthetic communities, the sum of parts. Science, 349(6251), pp.924–925

Organizer: Gil Westmeyer, Munich