

Preface

Synthetic biology is an emerging multidisciplinary field with the potential to revolutionize our approach to global problems ranging from drug discovery to energy production. So what exactly is "SynBio," why is it so powerful, and why is it exciting students in ways never seen before? Perhaps the best answer is: synthetic biology is cutting-edge methods that make biology much easier to engineer. Yet there was no lab manual compiling these methods or detailing a synthetic biology lab course. Our goal was to fill this remarkable gap.

If you are one of the following: a teacher wanting to set up a student-driven synthetic biology lab course, a student taking such a lab course, a high school or tertiary institution student looking to participate in the international Genetically Engineered Machine (iGEM) competition, a new researcher in synthetic biology, or a non-specialist curious to know more about SynBio, iGEM and "BioBricksTM," this book is for you. The protocols are straightforward enough to be used by any science students, be they biologists, chemists, engineers or even undifferentiated high school students.

Inspiration for writing this manual came from the grass roots level: students at Sweden's Uppsala University. They pressed the faculty to host five successive iGEM teams and to start a lab course, came up with the key project ideas, and thoroughly enjoyed themselves! The subject matter is also close to our hearts: ACF is a synthetic biology professor who created this lab course, JL is a Ph.D. student who set up and taught this lab, and EG is a Ph.D. student who tutored Uppsala's last three iGEM teams. So we finish with a warning before opening: SynBio is highly addictive!

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