GSTP
Seminar Series

University of Wisconsin-Madison
Genomic Sciences Training Program

Fostering new paradigms for the biological sciences

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Room 1408, Genetics/Biotechnology Center, 425 Henry Mall

Progress in the Development of an Automated Gene Synthesis Method

Abstract:

Light-directed synthesis of oligonucleotides (for example in the manner of Nimblegen or Affymetrix) has proven to be a useful method of fabricating microarrays. Recently, however, our group has been using this platform as a source of short oligo segments--construction material for the building of much larger sequences. Rather than use the synthesized ssDNA as bound hybridization probes, our group is working on cleaving the oligos from the chip surface and stitching them together. This process requires several operations in addition to those performed when making standard microarrays, e.g. elution of the oligos from the chip surface, dry down, resuspension, amplification, assembly, and then perhaps some method of wild type identification (insertion into a cloning vector) or error correction (studies with MutS are underway). At present, these post-synthesis operations are both labor- and time-intensive, and it is my aim to automate these processes as much as possible to improve yield and decrease iteration time. In this presentation, I will outline some of the issues and challenges we face and present our latest results.
