UNIVERSITÉ DE STRASBOURG

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INSTITUT DE SCIENCE ET D'INGENIERIE SUPRAMOLECULAIRES

C O N F E R E N C E

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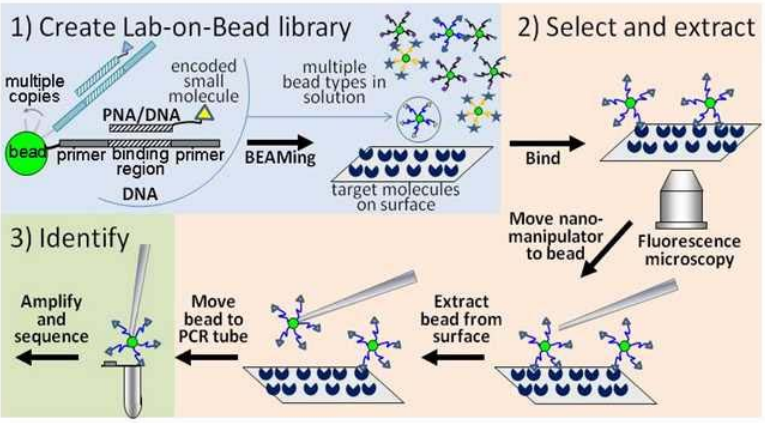
"Lab-on-Bead processing of encoded chemical libraries: using nanotechnology to "discover more with less"

In collaboration with Prof. Nicolas Winssinger, three Wake Forest University physics professors and NanoMedica, Inc. have developed a bead-based platform that allows for faster small-molecule screening and requires less reagents. The beads are each functionalized with >1000 copies of single-stranded DNA that have a sequence identical to one another but different from the sequences on all other bead. This is accomplished through a new, but established, technique called BEAM (beads, emulsions, amplification, and magnetics). Once functionalized with DNA, the beads capture complementary strands of DNA or PNA that are themselves encoding tags attached to small molecules. Together, these encoded chemicals captured by BEAMed beads are the backbone of the Lab-on-Bead innovation and will allow NanoMedica's customers and partners to "discover more with less". For example, sub-femtomole quantities of both target and small-molecule library are required when Lab-on-Bead displayed small molecules are screened on surface-bound target and resulting tight binding beads are extracted with a nanomanipulated suction micropipette. The extracted bead is simply placed in a PCR tube and the bound DNA amplified for sequencing. Based on the DNA sequence, the tight-binding small molecule can be identified and used for further physiological assays and drug trials. This minaturization of an entire screening laboratory onto the surface of a nanoscopic bead will greatly accelerate drug discovery and chemical genetics.



Lundi 21 juin 2010 - 17 h 00

ISIS, salle de conférence - 8 allée Gaspard Monge, Campus Esplanade

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