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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health



National Institutes of Health Commercialization Assistance Program
(NIH-CAP)

Company Profile

Industry Sector: Biotechnology / Research Services

Company Overview: BioHesion has developed Goldbinder™, a proprietary system to derivatize gold surfaces with proteins, peptides and other important molecules. With expertise in molecular & cell biology, protein chemistry, production of proteins and development of biosensors, BioHesion provides the complete research and development solution to derivatize gold surfaces for the biomedical community.

Target Market(s): Goldbinder™ has application in two primary markets:

- 1) Biosensors: enables gold based biosensors including instrument platforms such as surface plasmon resonance or enzyme electrodes, and rapid diagnostics based on colloidal gold
- 2) BioMaterials: surface coating of gold nanoparticles for drug delivery and bioimaging

Key Value Drivers

Technology*: Goldbinder™ is a proprietary surface binding system based on the extraordinary affinity of specific gold binding peptides. Using these peptides, BioHesion enables gold binding via 1) purified peptides for chemical linkage, 2) biotinylated peptides for universal binding, 3) direct fusions with bioactive peptides, and 4) recombinant fusion proteins with the goldbinding peptide tag.

Competitive Advantage: Goldbinder™ advantages include:

- 1) Exceptional stability – robust, long lasting and reusable surfaces
- 2) Simplicity – surfaces prepared in aqueous buffers
- 3) Speed – surfaces can be prepared in minutes
- 4) Flexibility – broad range of molecules bound and surfaces derivatized
- 5) Biomedical application – nonfouling surfaces can be used with complex fluids – eg. blood plasma
- 6) Cost effectiveness

Plan & Strategy: We are seeking partners to enable improved performance and new products in the BioSensor and Biomaterials fields

*Technology funded by the *National Cancer Institute* and being commercialized under the NIH-CAP

Management

Leadership:

Mr. John Castle, CEO

Dr. Richard Woodbury, CTO and founder

Dr. Theo deVos, COO and founder, CAP contact

Advisors and Directors:

Mr. Gary Schweikhardt, Board Chair

Dr. Michael Abrams, Director and Advisor

Product Development

BioSensors:

Surface Plasmon Resonance: system established, demonstrated performance with biotinylated peptides, protein A fusion protein and other biomolecules. Demonstrated robustness of derivatized sensor surface, and nonfouling properties.

Colloidal Gold: demonstrated surface binding on colloidal gold and retention of enzyme activity. Demonstrated binding in lateral flow setting.

Biomaterials:

Pegylated peptides: Demonstrated the production of pegylated gold binding peptides and their binding using SPR.

Goldbinder™ Reagents:

Produced a variety of gold binding peptides, proteins and biomolecules

Research Services:

Established and met milestones in contracts for production of Biosensor molecules