



PROTEIN DYNAMIC SOLUTIONS, LLC

Bioprocess Development & Training Complex
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Management

Belinda Pastrana, CEO, molecular biophysics Ph.D. from Rutgers University and a Post Doctorate in Pharmacology and Molecular Biology at Mayo Clinic. Chemistry Professor University Puerto Rico-Mayaguez.

William Lockwood, CFO, bio financial analyst, PE FoF Founder \$400M AUM, former CEO investment banker

Key Board Advisors

Franklyn Prendergast, PhD, Mayo Foundation Fellow, Eli Lilly & Co Director former Research Director Mayo Clinic

Isao Noda, PhD, formerly Procter & Gamble

Elizabeth Plaza, global regulatory and validation expert, director, founder of Pharma BioServ, Inc. (NASDAQ: PBSV)

Partners

Center for Cancer Research, NCI, Bethesda, MD
Daylight Solutions, San Diego, CA
Spectral Systems, Hopewell Junction, NJ

Legal Advisors

McDermott Will & Emery Boston MA, Hutchinson LLC, Raleigh, NC, Ferraiuoli LLC, PR

Industry: Biotech Analytical Characterization

Amount of Financing Sought

Current Investors
NSF SBIR Phase I (Phase II 2016)
PR Tech Trust

Use of Funds

- Complete the Kaskade™ HT device with solution partners
- Recruit Business Development Executive
- Business Development
- IP Strategy

Business Description: PDS device and software provides early R&D analytical characterization and formulation services to the biopharma industry, federal and academic labs, and contract research organizations. PDS' commercialization strategy explores an exclusive R&D rollout, co-development or acquisition.

Company background: PDS has licensed two University of Puerto Rico patents developed by its CEO founder. Proof-of-concept, technology test & initial prototype completed.

Solution: Protein aggregation is a key bottleneck in biologics R&D and biosimilar characterization. Only when you avoid protein aggregates you allow therapeutics to act as intended, avoid immune response, increase approval rates, lower R&D costs (which on average are \$1BN and up to \$4BN when including failed drugs) and reduce product recalls. There is an urgent need for accurate, easily reproducible analytical methods.

Product/Services: A novel, accurate and reproducible high throughput platform solution, all in one experiment which allows for the determination of the mechanism and extent of protein aggregation in solution and the stability of the protein therapeutic resulting in significant time and cost savings.

Technology/Know How: The PDS Kaskade™ and Correlation Dynamics™ technologies provide a breakthrough solution for biologics research & development (R&D) and biosimilars characterization. Kaskade™ device meets industry needs, its fully automated, has minimal sample requirements, allowing for formulation testing & image data capture. It is an accessory that can be used with any microscope for imaging and spectral data acquisition. Correlation Dynamics™ software allows for data analysis. Being developed in phases.

Market: Novartis-MIT have disclosed that 70% of average biologics R&D costs come from analytical characterization and development (30-35%), process development (28%) and formulation (9%) functions, which are precisely the areas PDS technology will re-engineer. Biologics groups conduct 90% of these activities in-house.

Competition: To date even though there are 10 LST methods, none of them determine the mechanism of aggregation, none of them simultaneously determine the size and identity of aggregates, extent of aggregation or the relative stability of the protein. As a result, this is a unique solution for developability assessment, since it requires only **one** experiment and minimal protein sample is required for QbD and DoE approach.

Recent transactions in LST include the \$200M acquisition of Protein Simple by Bio Techne and \$25M in private equity raised by Unchained Labs.