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Applied Scientific Research
Engineering and Software Development Consultants

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Larta Institute

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

Company Profile

Industry Sector: Software; Computer Aided Engineering (CAE)

Company Overview: Applied Scientific Research (ASR) is a pioneer in developing easy-to-use, physically accurate fluid dynamic simulation technologies (CFD), based on the new paradigm of "grid-free" simulation algorithms. ASR has been continually developing its flagship flow simulation product, **Ω-*Flow***, using funds from consulting and SBIR grants/contracts (DOE, NSF, NIH, NASA). The beta release of **Ω-*Flow*** to the biomedical market is planned for late 2009.

Target Market(s): Immediate: Biomedical, Pharmaceutical, and Animation Long Term: Education, Manufacturing & Chemical Processing, Environmental, Marine, Aerospace, and Automotive.

Key Value Drivers

Technology: **Ω-*Flow*** is a highly advanced user-friendly CFD software used for the modeling, analysis, and (ultimately) design optimization of biomedical/pharmaceutical products, which involve (and interact with) complex unsteady turbulent fluid flow. Typical products where **Ω-*Flow*** can be used most effectively for design optimization are Prosthetic Heart Valves, and various Cardiovascular/pulmonary Assist Devices.

Competitive Advantage: Computational model set-up is trivially simple with **Ω-*Flow*** (ideal for the CFD novice; e.g., biomedical engineers) and an order of magnitude faster than traditional CFD (hours/days vs. weeks/months). **Ω-*Flow*** predictions are highly accurate and fast (shortens time to prototyping).

Plan & Strategy: Continued product development (adding blood and drug aerosol flow models in **Ω-*Flow***), strategic partnership, market validation of **Ω-*Flow*** via benchmarking, and subsequent aggressive marketing. Seeking $5M third-party investment to develop an intuitive graphical user interface and to begin marketing the software in late 2009.

*Technology funded by the NCRR and being commercialized under the NIH-CAP.

Management

Leadership:

Adrin Gharakhani, Sc.D., President and CEO, 26 years experience in advanced algorithm development for computational analysis and modeling of engineering problems in biomedical, environmental, aerospace and automotive industries. 12 years experience with project management, including the operation of ASR.

Mark J. Stock, Ph.D., Research Scientist, 10 years experience in development and testing of bleeding-edge scientific software

Product Pipeline

Ω-*Flow* beta version focused on mechanical valves & ventricular assist devices. Other advanced model development efforts in the pipeline are:

- Platelet and RBC flow modeling (focus on thrombotic effects)
- Aerosol flow modeling for drug delivery in respiratory tracts

	2008	2009	2010
Ω-*Flow*	Development	Beta Launch	Benchmarking
User Interface	Customer Input	Development	Alpha Launch
CAD/CAM Interface	Development		Alpha Launch
Blood Modeling			Development
Aerosol Modeling		Development	