



SemBioSys is focused on leveraging our unique proprietary platform to manufacture high-value proteins and oils. Our seed-based protein production system can provide for our partners product enablement, exceptionally low cost and/or unprecedented scalability. We are applying the platform with high selectivity to products with tremendous clinical promise and value potential, particularly Biosimilar Insulin and Apo A₁_{Milano}.

| THE TECHNOLOGY

Plant-Produced Proteins

SemBioSys' platform offers two important capabilities: the use of genetic engineering to attach proteins to oilbodies in seed and cost effectively extracting oilbodies from seeds at scale. The technology offers four major advantages over traditional and alternative transgenic protein production systems:

- Production of complex proteins (Biosimilar Insulin and Apo A₁_{Milano})
- Flexible and scalable production of proteins
- Significantly reduced capital costs
- Significantly reduced cost of goods

| THE POTENTIAL

Cardiovascular Disease

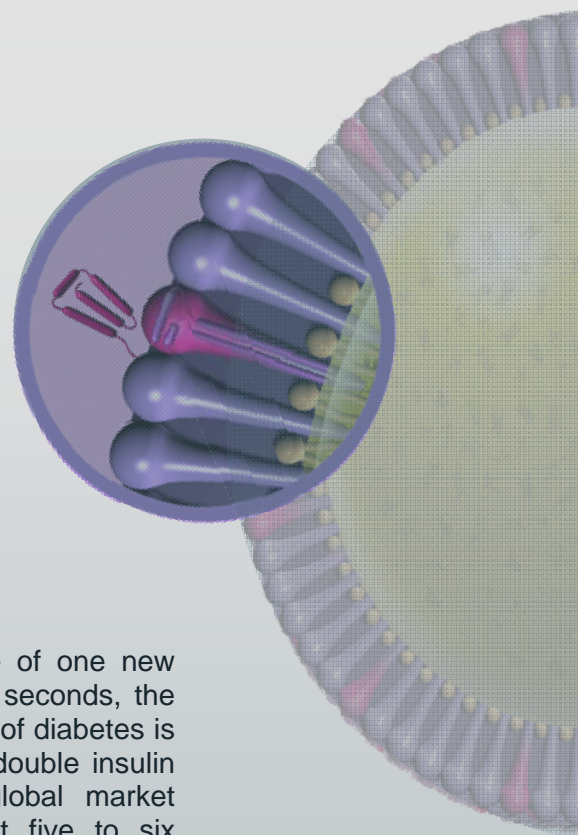
Atherosclerotic cardiovascular diseases are the leading causes of death in developed nations. Statins are the largest selling drug class in the world, but only prevent plaque buildup in blood vessels. Apo A₁_{Milano} belongs to a new class of HDL therapies that has been shown to actually remove plaque from arteries in a human trial.

SemBioSys is developing transgenic safflower as a novel manufacturing solution for human Apo A₁_{Milano}. Plant production of Apo A₁_{Milano} can overcome critical manufacturing barriers associated with fermentation based systems that have impeded the development and commercialization of Apo A₁_{Milano}.

Diabetes

Expanding at a rate of one new diagnosis every five seconds, the increasing incidence of diabetes is expected to almost double insulin demand and the global market value over the next five to six years.

SemBioSys is developing transgenic safflower as a new source of biosimilar human insulin (SBS-1000). Plant-produced insulin has the potential to offer unparalleled scalability and superior production economics compared to commercial insulin currently available. SemBioSys' plant-sourced insulin will be positioned to address the growing insulin supply gap and improve global access to this life-saving therapy.



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| THE PROGRESS

Apo AI_{Milano}

Analytical, *in vitro* and *in vivo* assays conducted to date indicate that safflower-produced Apo AI_{Milano} is physiologically and pharmaceutically comparable to microbially-produced Apo AI used in the previous human trials. SemBioSys recently confirmed encouraging biologic activity of safflower-derived Apo AI_{Milano} in seven preclinical models in collaboration with both academic institutions and potential pharmaceutical partners. *In vivo* studies have demonstrated:

- Rapid mobilization of cholesterol from the arterial wall
- Lessening of plaque lipid content
- Decreased immune reactivity in aortic plaque
- Reduction of total plaque volume versus controls

Biosimilar Insulin

SemBioSys has confirmed that plant-produced insulin (SBS-1000) is eligible for an abbreviated clinical development path. SemBioSys initiated a Phase I/II clinical trial of SBS-1000 in the United Kingdom during Q4 2008. In March 2009, SemBioSys announced that the trial had demonstrated that SBS-1000 was bioequivalent to a commercially available recombinant human insulin with the expected safety profile. Highlights from the preliminary analysis were:

- SBS-1000 was bioequivalent to Eli Lilly's Humulin® R, a widely-used human insulin in North America
- SBS-1000 in humans showed pharmacokinetics and pharmacodynamics indistinguishable from Eli Lilly's Humulin® R, as SemBioSys had previously shown in animals
- SBS-1000 was well tolerated at pharmacologically active dosages

| THE PLAN

- Progress on pilot-scale manufacturing of Apo AI_{Milano}; formulation optimization
- Scale up of next-generation Biosimilar Insulin seed lines
- Advance partnering discussions for Apo AI_{Milano} and Biosimilar Insulin programs

Management

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Harm Deckers - VP, Operations & Legal Affairs
Joseph Boothe - VP, R&D
Karen Boodram - VP, BD

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