



VITAL THERAPIES

TARGETING LIVER DISEASE

Vital Therapies, Inc. (VTI) is developing the first human cell-based allogenic therapy for acute liver failure; ELAD[®] provides extracorporeal support for patients with liver failure by processing toxins and synthesizing proteins and metabolites that are key products of normal human liver function. VTI has completed six clinical trials including a pivotal trial in China, which was used to file for marketing approval in China. A US/EU pivotal trial to secure BLA and MAA approval is underway

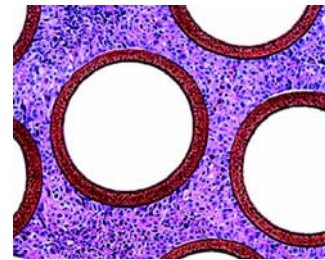
Product ELAD is comprised of four cartridges containing 440 grams of immortalized human liver cells mounted on a bedside unit. The patient's plasma flows between the cells through 32,000 hollow fibers in the cartridges, allowing two-way transfer of metabolites with the liver cells. During ELAD therapy the cells metabolize toxins and synthesize proteins and other liver specific products essential for life, assisting liver function.

Technology The proprietary ELAD human liver cell line was licensed from the Wistar Institute in Philadelphia and further developed by Baylor College of Medicine. Derived from a human hepatoblastoma, the cells can be grown in unlimited quantities, stored and shipped worldwide. Once incorporated into the bedside unit, a set of cartridges enables continuous treatment for up to 17 days without the cells losing their ability to perform.

Clinical Development Six human clinical trials have been completed in the USA, UK and China. 150 patients have received ELAD treatment including 14 in compassionate use programs in USA, UK, Saudi Arabia, and Singapore. Phase 1 and two phase 2 controlled, randomized, multicenter trials were run in USA under a FDA IND with promising results. In China, VTI has completed a successful pivotal trial and has filed for market approval. A pivotal trial is currently underway at over 20 sites in USA, UK and Saudi Arabia. Forty of the targeted eighty patients have been enrolled as of August 2010. BLA and MAA submissions are targeted for 2011.

Regulatory Status ELAD is regulated as a biologic in the USA by the FDA's Division of Cellular, Gene and Tissue Therapy in CBER. In the EU, ELAD is an Advanced Therapy Medicinal Product (ATMP) and in China, ELAD is regulated as a medical device. The California FDB has licensed VTI's San Diego plant as a cGMP compliant Drug Manufacturing Facility. The plant also successfully underwent UK QP audit.

U.S. Market Transplantation is the sole therapy shown to improve survival in liver failure. However, over 17,000 patients are on the liver transplant waiting list but only 6,400 transplants are performed annually with an average waiting time of about a year. Over 2,000 patients die while waiting for transplantation. There are about 30,000 patients that are not eligible for transplantation and have no therapeutic options available. In a market study done for VTI by Easton Associates, a U.S. market potential for ELAD of \$1.08 billion per year was defined.



ELAD Cross-section (40X)

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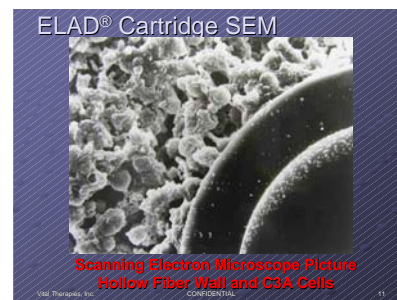
China Opportunity Liver disease is pandemic in China. A market study done for VTI by IMS China concluded that 12% of the population is infected with hepatitis B and C and there are more than 400,000 deaths from liver disease annually. In China's urban centers, IMS identified over 1 million patients who would be clinical candidates for ELAD. With the cooperation of eminent physicians who approached VTI through a long time VTI Chinese employee, a 100% owned subsidiary was formed in China to conduct the clinical trial and launch ELAD in China. The trial was completed and the China market application was filed in September 2007. It is under review at the China SFDA.

Compassionate Use ELAD has been approved for compassionate use via an Expanded Access protocol with cost recovery by the US FDA and regulatory bodies in the UK, Singapore and Saudi Arabia. A total of 14 patients have been treated through these programs.

Manufacturing The bedside system, disposables and cartridges are sourced from reputable medical device suppliers. The cells are grown in the cartridges at VTI's cGMP facility in San Diego, which was recently expanded to provide a manufacturing capacity of 2,000 patient sets per year. The logistics of growing, storing, shipping and connecting the cartridges to the bedside unit have been proven during the US, UK and China clinical trials. On approval in China, plans will be initiated to build a large production plant there.

Competition Liver transplantation is the only therapy currently available proven to extend survival in patients with acute liver failure. However, there are a limited number of livers available, the procedure is very expensive and requires a lifetime of immunosuppressive drugs. Existing toxin removal systems include albumin dialysis, charcoal or resin filtration and plasma exchange. However, none of these has been shown to improve survival, nor are they accepted as a standard of care. Recently published data on trials of two albumin filtration devices showed no impact on survival despite removal of toxins and improvement in encephalopathy. There are currently no other living cell-based liver support devices in controlled clinical trials anywhere in the world. First mover advantage for VTI will include Orphan Drug, Fast Track and Priority Status in the USA creating substantial technical and regulatory advantages.

Financing VTI is financed by a syndicate of venture capital funds led by Versant Ventures and MedVenture Associates.



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