

# Developing a competitive inhibitor peptide drug candidate targeted towards angiogenesis mechanisms for the treatment of cancers and diabetic retinopathy.



The commercialisation company  
of the University of South Australia

*Researchers at The University of South Australia have developed technology that has the potential to treat and diagnose certain cancers and other diseases characterized by uncontrolled angiogenesis*

## Technology Background

The research team led by Dr Ben Roberts at the University of South Australia's Sansom Institute has achieved a paradigm shift in the field of angiogenesis and cellular vascularisation pathways. Much work around the world has focused on a particular version of a protein and its role in these pathways. The team has shown that while this version is unlikely to ever be a viable anti-cancer candidate, a second version plays a key role in the regulatory pathway and represents a very promising target.

The second version of the protein is under direct positive control of "uncontrolled" vascularisation, and specifically switches on VEGF and EPO in tumour cells and promotes tumour growth *in vivo*. The team has developed a competitive inhibitor peptide that binds to and prevents its function in this pathway. Angiogenesis is halted in tissues where this peptide has been delivered.

Over the years the research team has developed considerable expertise with the technology in the area of angiogenesis and vascularisation, and following the recent successful *in vivo* demonstration of the lead candidate peptide, are now ready to take the technology a big step further by completing toxicology and later human trials.

## Application

The lead peptide drug candidate represents a significant development in targeted therapy for cancers and diseases such as diabetic retinopathy. Currently no drugs or treatments on the market differentiate between different versions of proteins induced by hypoxia or specifically target the second version that the group has shown to play a key role in the angiogenesis process.

The lead candidate is the first of its type, the first to be specifically targeted towards this particular hypoxia inducible protein. Related applications from the underlying research also include a second candidate and a novel diagnostic cancer assay with a promising development pathway.

The global cancer therapeutics market in 2009 is estimated at USD \$58 Billion, of which Avastin, the blockbuster anti-angiogenesis cancer drug (antibody) is expected to be worth over USD \$8 Billion. The team wishes to partner with a pharmaceutical company in order to develop the therapeutic further and enter this market.

## IP Position

The lead candidate is covered by a United States provisional patent application and concerns methods and agents for modulating the activity of particular angiogenesis proteins. A second United States provisional patent application has been drafted to cover related aspects of the pathway and methods for treating and diagnosing certain cancers and other diseases. Research is nearing completion and filing of this patent is expected in early 2009.

## The Group

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