



What if we could detect the loss of insulin producing beta cells in pre-diabetics?

Project Status

- Phase I

Next Milestones

- Phase II studies start (1H10)

Intellectual Property

- F-18 analogs of known compound (DTBZ)
- Exclusive license to methods of imaging diabetes from Columbia University.
- Exclusive license to imaging compounds from the U of Pennsylvania and U of Michigan
- Worldwide

Significant Commercial Potential

- Diagnosis of Type I and II diabetes
- Early detection of beta cell loss in pre-diabetics
- Monitoring of therapeutics for preserving beta cell function
- Monitoring of beta cell transplantation

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Diabetes mellitus (DM)

There are 20.8 million children and adults with diabetes in the United States alone (7% of the population). Diabetes mellitus (DM) is on the rise globally and is associated with increased risk for serious, life-threatening complications including heart disease and stroke. Proactive disease control can help reduce risk; however, many people are not aware that they are at risk of diabetes until they develop one of its complications.

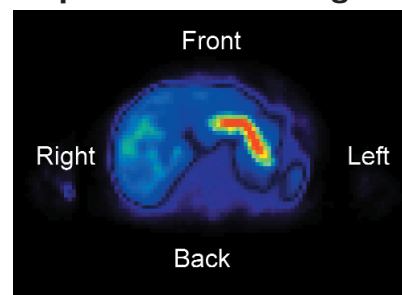
Declines in the number of beta cells in the pancreas are evident prior to the onset of diabetes⁽¹⁾. At Avid we are developing molecular imaging compounds targeting the vesicular monoamine transporter (VMAT2), which is expressed by the beta cells of the pancreas. We have a molecular imaging agent (¹⁸F - AV-133) for VMAT2, which will soon enter clinical trials for ¹⁸F-PET imaging of beta cells. Molecular imaging of beta cells using Avid's VMAT2-targeted compound (AV-133) has the potential to:

- Detect losses in beta cells before a diagnosis of diabetes is possible by current methods.
- Identify individuals for earlier treatment of pre-diabetes who are at elevated risk of developing diabetes.
- Allow the monitoring of new treatments which are designed to preserve beta cells.

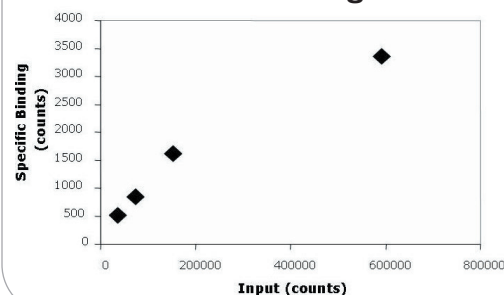
AV-133 is an ¹⁸F radiolabeled derivative of DTBZ. In preclinical studies AV-133 has been shown to:

- Have high binding affinity to VMAT2 (0.1nM).
- Have selectivity for VMAT2.
- Exhibit saturable binding to isolated human islet cell membranes.
- Localize to the pancreas in high concentration (~5% i.d./gm at 30-60 mins p.i.).
- Have reduced pancreatic signal following blocking dose of non-radiolabeled compound.

¹⁸F-AV-133 human pancreas PET image



Binding of ¹⁸F-AV-133 to human islet homogenates



(1) Kahn SE. *J. Clin. Endocrinol. Metab.* 2001; 86; 4047-4058