# Repurpose PARP-1 Inhibitors for Type 2 Diabetes and Cystic Fibrosis Related Diabetes

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## Technology description

Expand to Two Additional Indications for Existing Drug
Market Need
Current therapies for type 2 diabetes (T2D), including the closely similar cystic fibrosis related diabetes (CFRD), only address the symptoms, not the underlying pathophysiology of the disease. So instead of halting disease progression, the growing number of patients continue to have poor glycemic control and suffer side effects from these symptomatic drugs.
Technology Overview
Dr. Struan Grant discovered the strongest genetic factor for T2D reported to date – harbored within the TCF7L2 gene (Nature Genetics, 2006). Subsequent studies identified SNP rs7903146 as the causal variant within the gene and its role in CFRD. In a separate study, PARP-1 was found to bind at the SNP region. Further, inhibition of this factor specifically rescued longevity in an animal model under hyperglycemic stress. Together, these data identify PARP-1 as a promising drug target (Figure 1). Taking advantage of the inhibitors that already exist for PARP-1 in other unrelated areas, Dr. Grant plans to repurpose these drugs for T2D and/or CFRD. Use of the existing inhibitors has already provided supportive cell-based read-outs.

## Application area

• Treatment for patients with type 2 diabetes and cystic fibrosis related diabetes

## Advantages

• Certain formulations of Parp1 inhibitors have passed their safety and efficacy clinical trials
• One Parp1 inhibitor formulation received FDA and EMA approval
• Other PARP1 inhibitor formulations in various phases of clinical trials

## Institution

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