



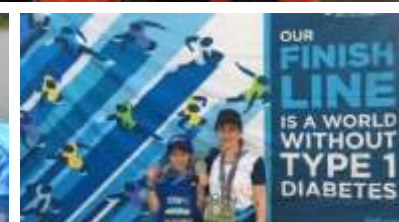
TYPE 1 ONENATION SUMMIT CHICAGO, IL-FEBRUARY 23 2019

Presented by: Jessica Franz-Christensen

My Connection



Our Message and Our Promise



Global Leader in T1D Research



COMMITTED OVER

\$2B

CUMULATIVE RESEARCH
FUNDING SINCE 1970



AWARDED

150

NEW RESEARCH
GRANTS IN FY2017



CURRENTLY FUNDING OVER

70

ACTIVE
CLINICAL TRIALS



FUNDING RESEARCH IN

21

COUNTRIES
ACROSS THE GLOBE

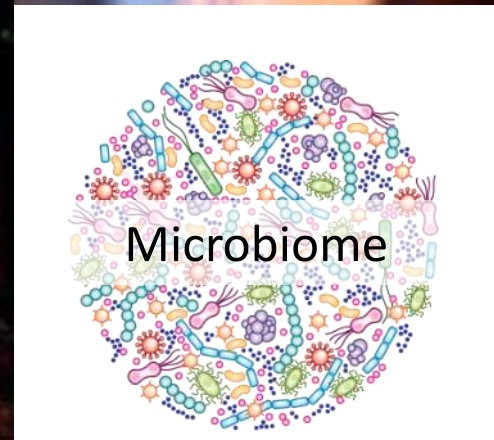
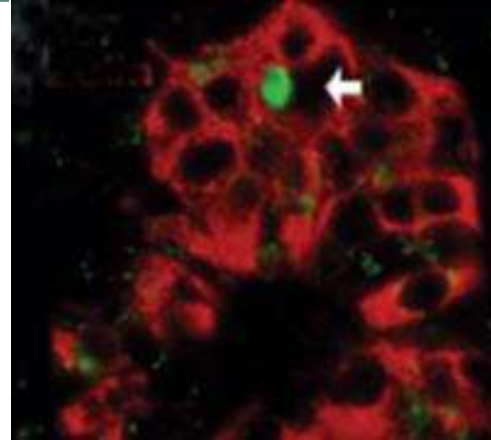
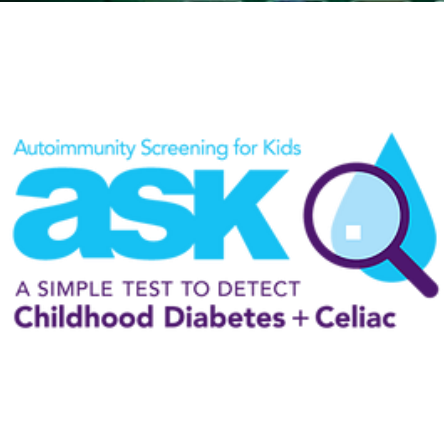
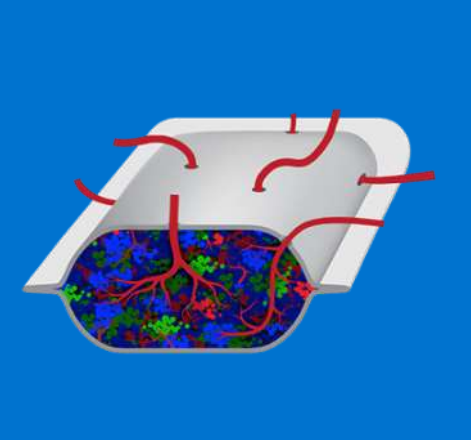
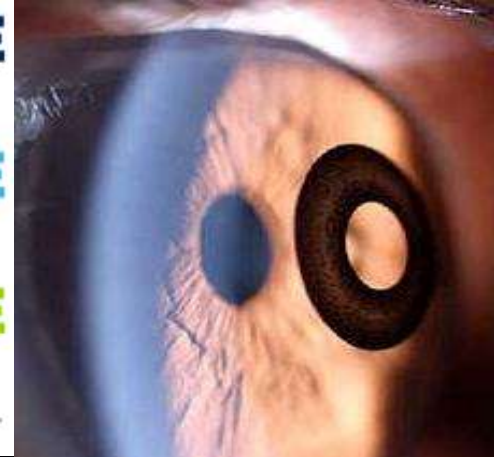
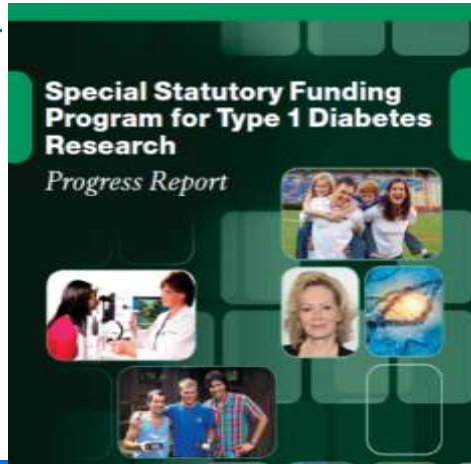


MORE THAN

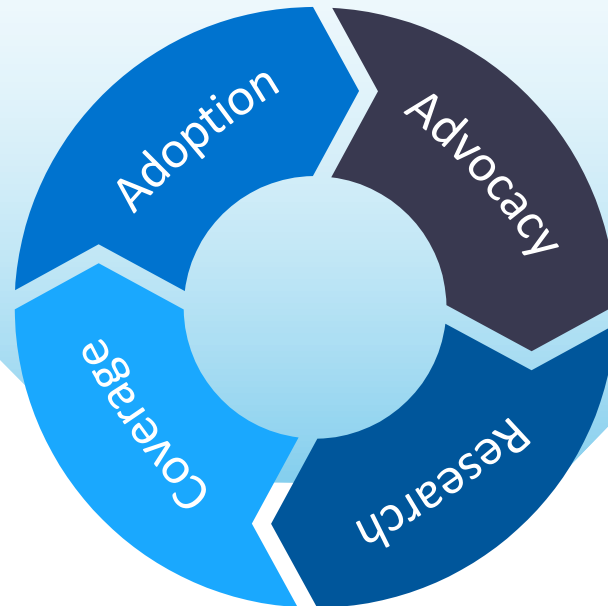
20

PH.D SCIENTISTS

Improving Lives, Advancing The Cure

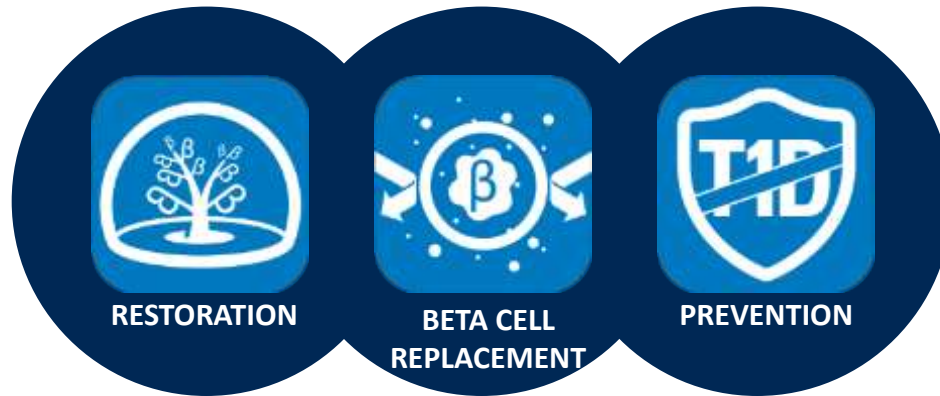


Accelerating Progress Across the Pipeline



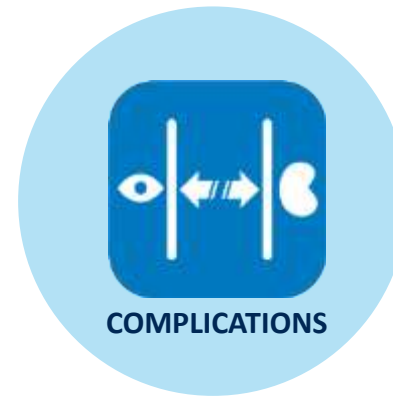
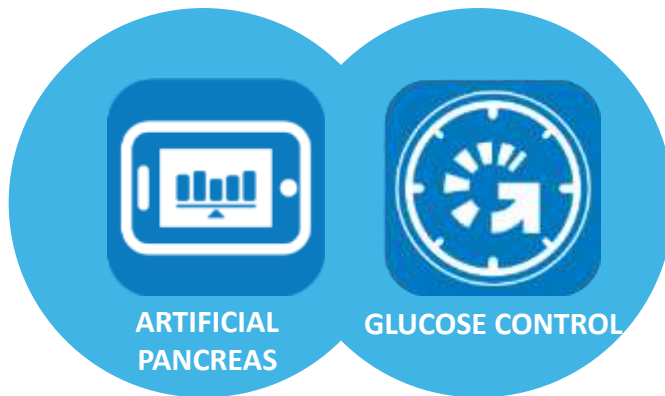
Research Priorities

CURE/PREVENT



TREAT

COMPLICATIONS



JDRF MISSION: ACCELERATING LIFE-CHANGING BREAKTHROUGHS TO CURE, PREVENT AND TREAT T1D AND ITS COMPLICATIONS



Restoration REGENERATION

Promote survival
and/or regrowth of the
body's own beta cells

IMMUNE THERAPIES

Prevent or stop the
immune system attack
on insulin-producing beta
cells in the pancreas



Two things to do to cure type 1 diabetes:

**Stop the destruction
of beta cells**

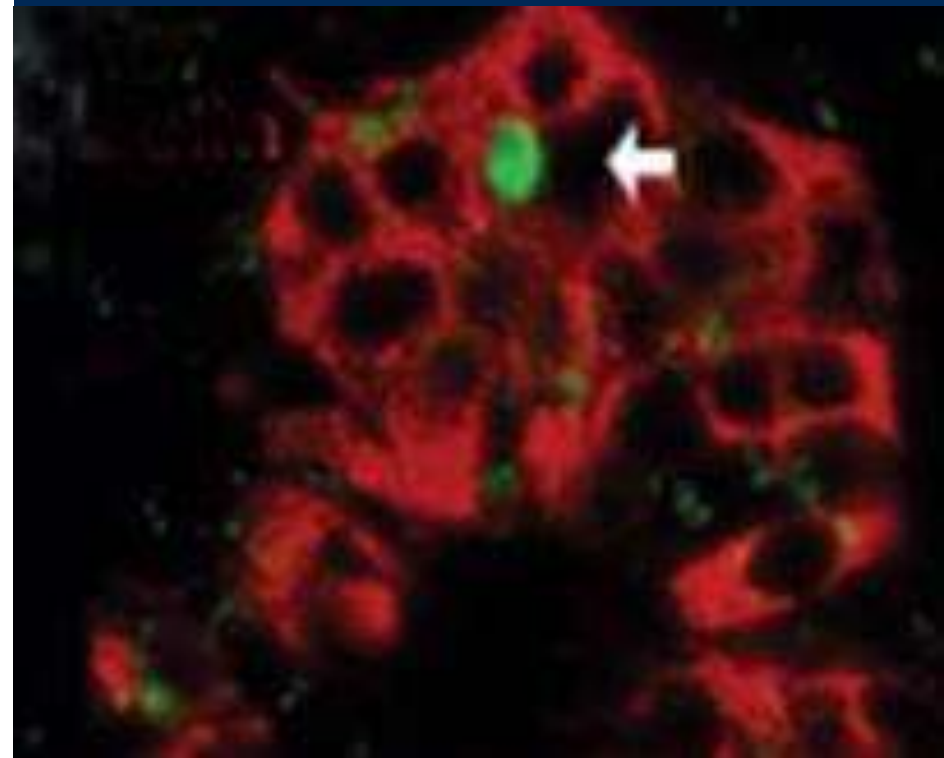
**Replace the beta cells
lost due to T1D**

RESTORATION

Beta Cells Can Be Made to Replicate

- After 50 years of type 1 diabetes, beta cells are still producing insulin
 - Medalists
- Under certain circumstances, beta cells can multiply
 - Pregnant women with T1D increase beta cell mass
- JDRF is developing therapies to stimulate beta cell replication

Beta cells producing insulin (in red)
in a person living with T1D for 50 years



RESTORATION

Relieving Beta Cell Stress

Gleevec

- Positive effect on beta cell health and survival

Verapamil

- In mice with diabetes, verapamil reduced beta cell death, normalized blood-glucose levels and increased insulin production

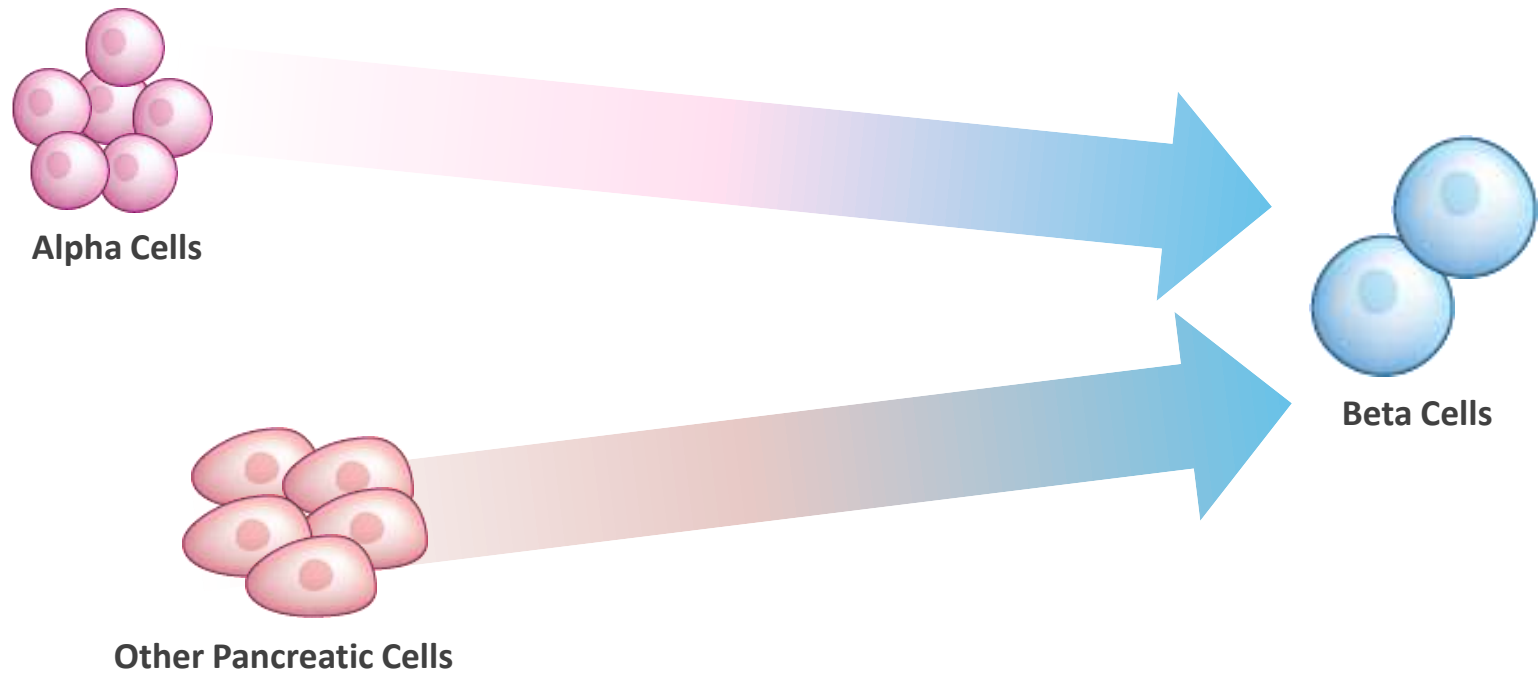
TUDCA

- In mice with diabetes, TUDCA, a drug used in Europe for liver cirrhosis, preserved beta cells and insulin production



RESTORATION

Conversion

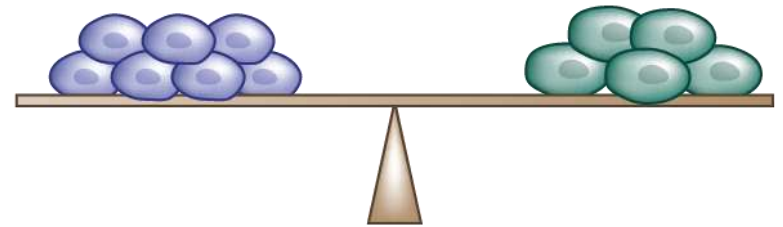


IMMUNE THERAPIES

Resetting the Immune System

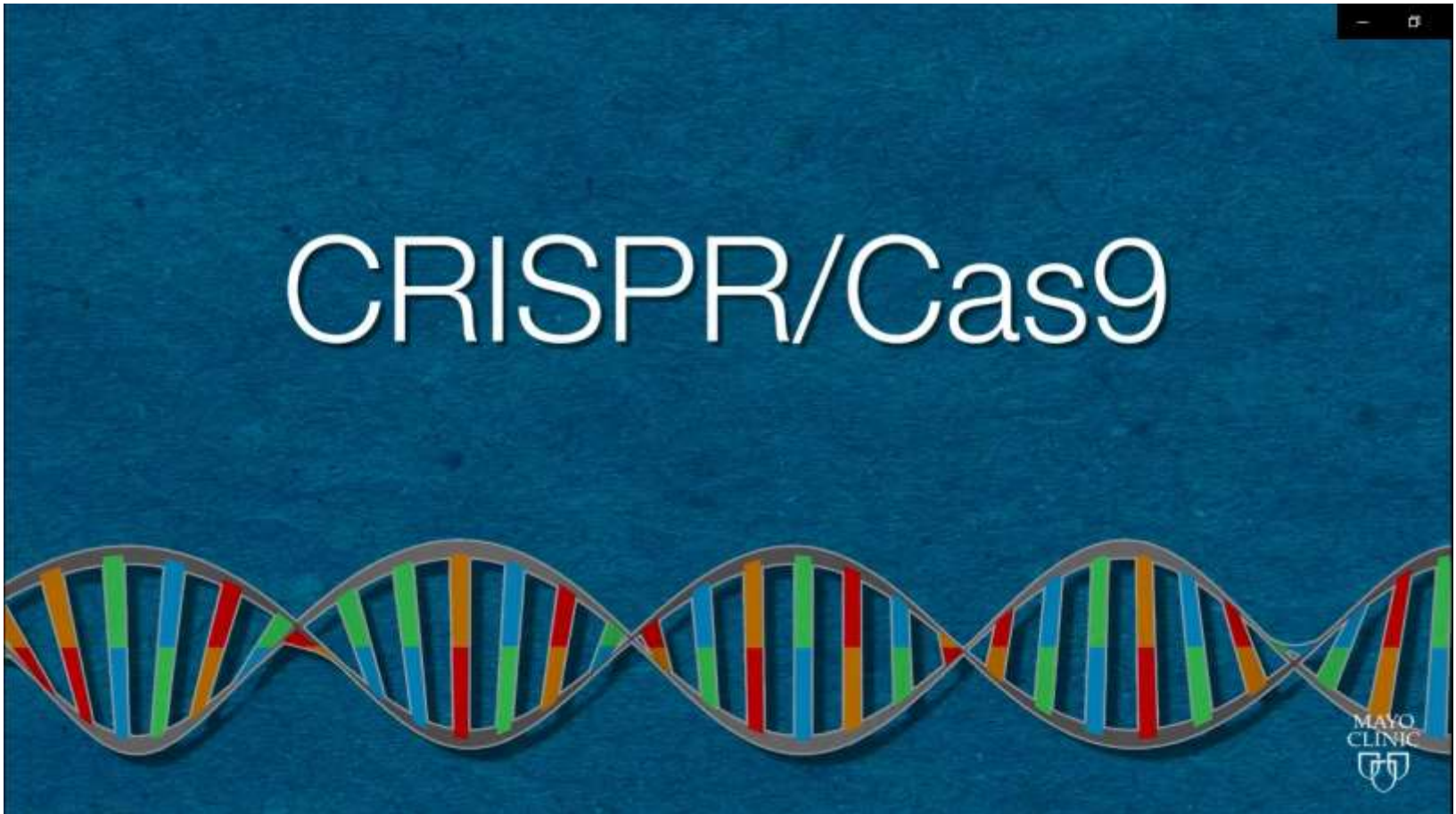
Multiple Therapies in Clinical Trials

- We are reaping the results of years of research and JDRF's investment in understanding the immunology of T1D
- JDRF is driving development and testing immune therapies for T1D; multiple therapies are now in clinical trials

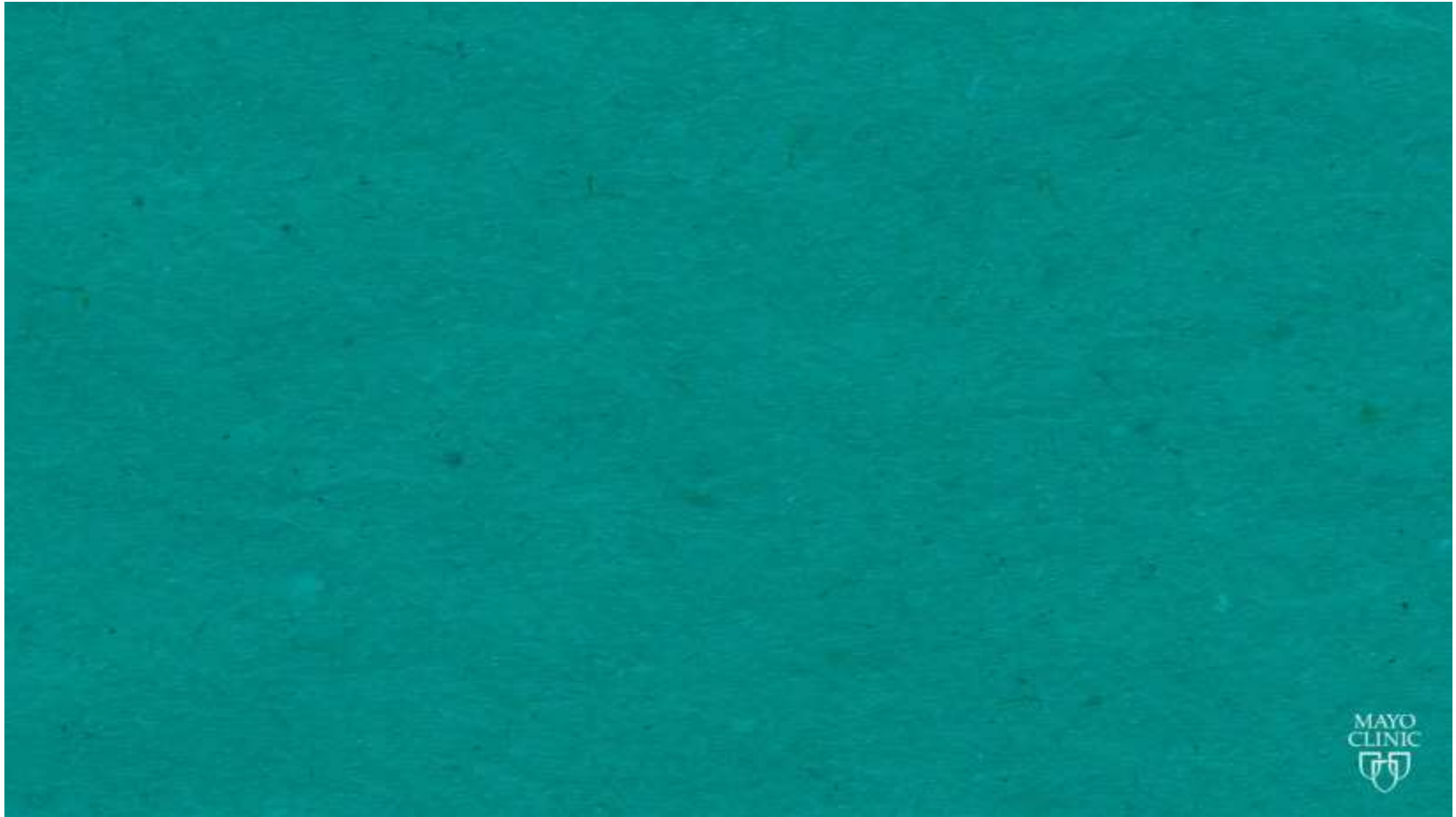


Normal Immune
Balance

What is CRISPR?



What is CRISPR?





Beta Cell Replacement

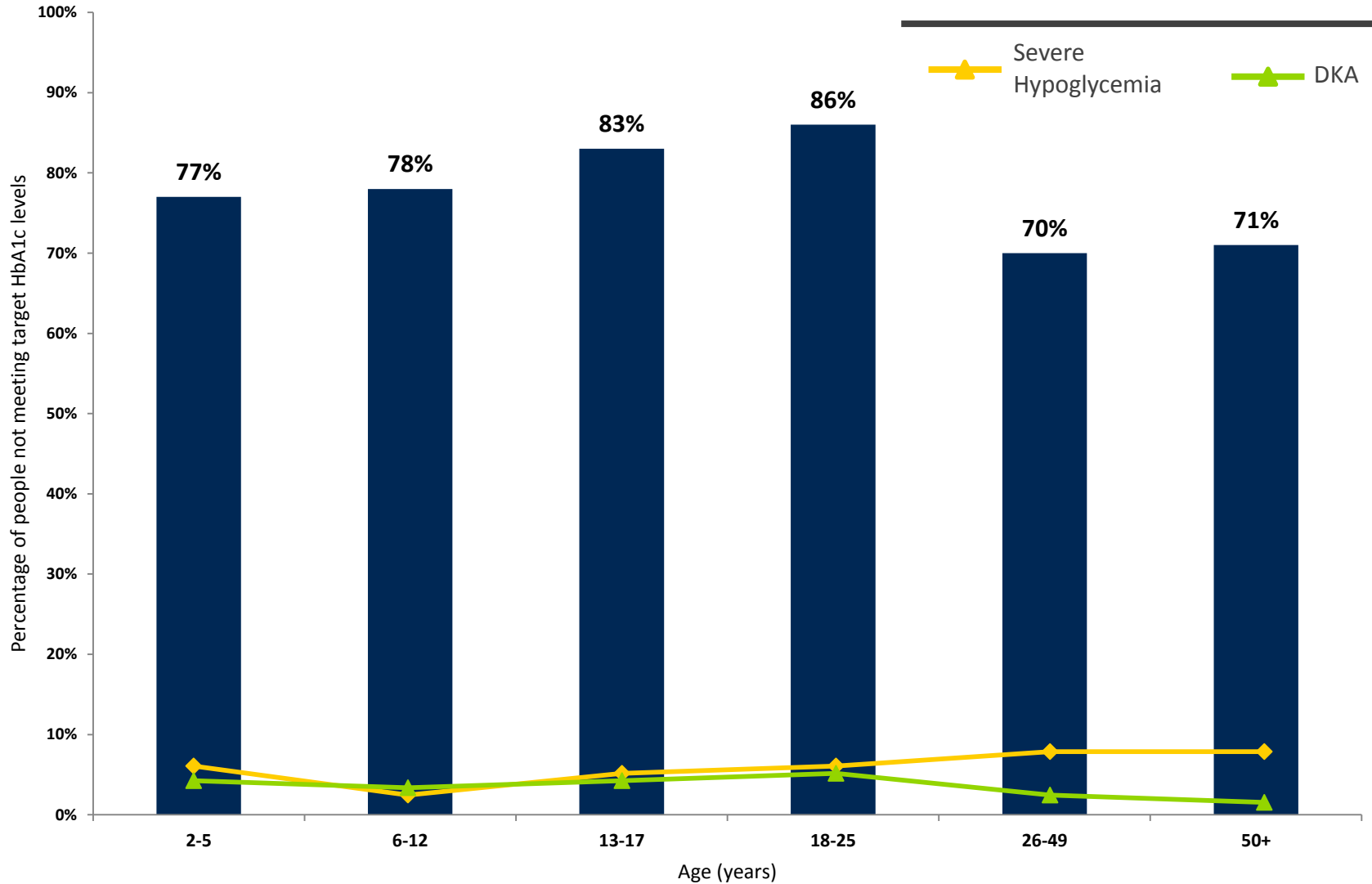
Deliver insulin independence without broad immune suppression



STATE OF T1D CARE

Keeping People Healthy

Percentage of people reporting one or more DKA/Hypo events in prior 3 months



Type 1 Diabetes can be Risky Business

That is why JDRF
is working hard to
make it safer and
easier for me to
manage it.

-Jack (age 8)



Artificial Pancreas

Enable more effective and improved glucose control with significantly less burden



Our Experience with the 670G & Fiasp



ARTIFICIAL PANCREAS

A Decade of Progress, More to Come

- Multiple advanced systems in development
 - More automated and user friendly
 - Smaller form factor
 - Single device



“I am thinking about diabetes 50% less of the time, which enables me to focus on what I want to do in life.”

Kady Helme // AP Trial Participant

- And more choices for patients

Insulet Corporation

bigfoot[™]
BIOMEDICAL

βeta βionics

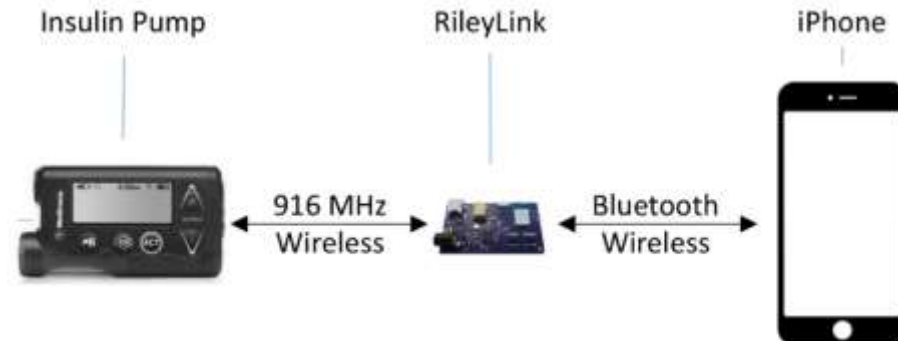
typezero
technologies

TANDEM[®]
DIABETES CARE

Medtronic

- JDRF Open Source Project

Open Protocol Automated Insulin Delivery Systems



OPEN APS

- www.openaps.org

LOOPING

- www.loopkit.github.io/loopdocs

**Facebook Group:
Looped**



Glucose Control

Improve glycemic control
and restore the body's
overall biochemical balance
without increasing disease
burden



GLUCOSE CONTROL

Glucose-Responsive Insulins

Glucose-responsive insulins will circulate through the bloodstream, turning on when they are needed and turning off when they are not

● GLUCOSE ● INSULIN



Blood-glucose
levels: low
Insulin: **inactive**



Blood-glucose
levels: high
Insulin: **active**



Blood-glucose
levels: low
Insulin: **inactive**

PREVENT HIGHS AND LOWS
SIGNIFICANTLY REDUCE BURDEN

GLUCOSE CONTROL

Non-Insulin Therapies- SGLT inhibitors



- Avoids high blood sugar
- Daily pill

HbA1c



- Improved time in range, body weight, and blood pressure – no increase in hypoglycemia

FDA → 2018

- 1st ever therapy developed for T1D before T2D



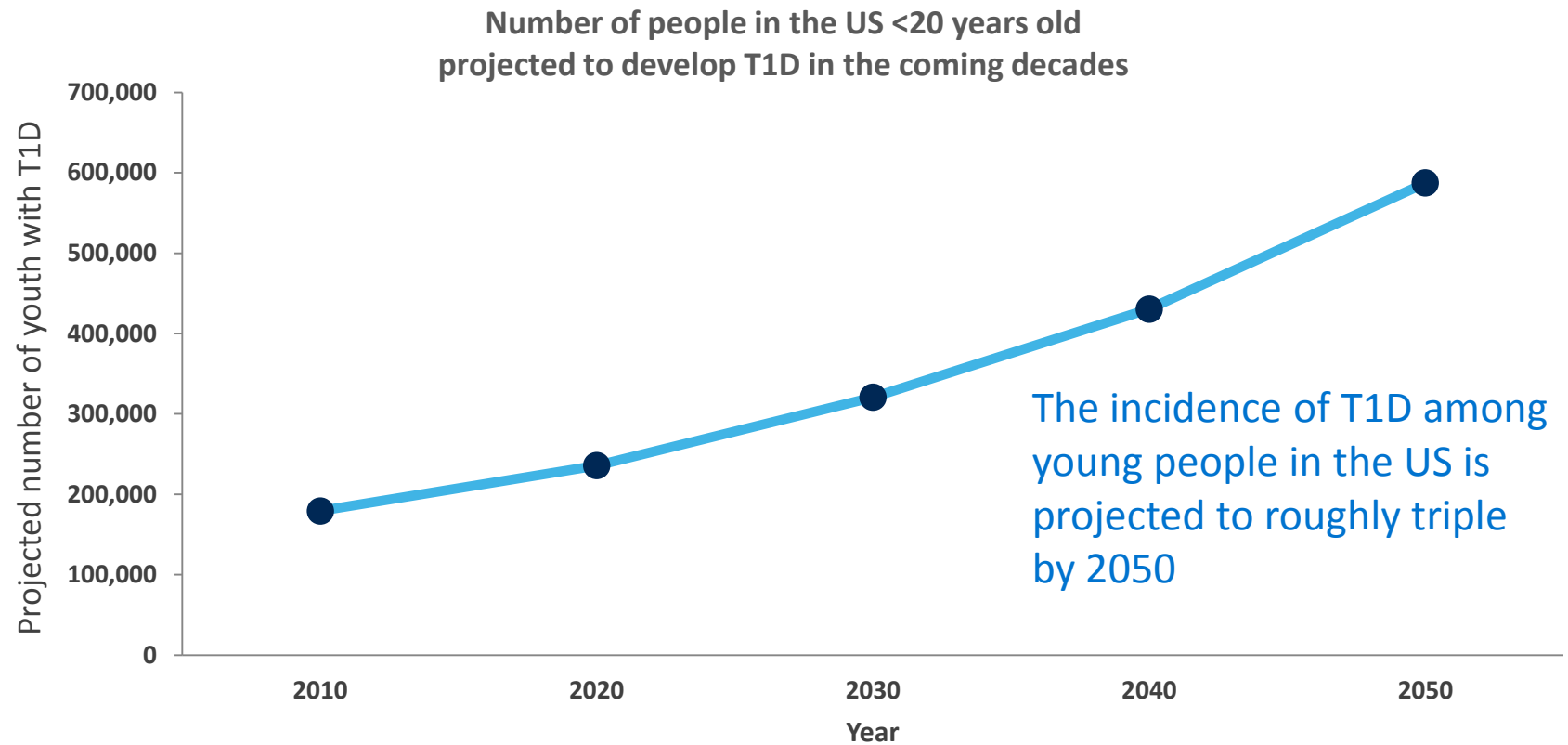
Prevention

Prevent or delay insulin dependence



PREVENTION

T1D is on the Rise



Precision Medicine Collaboration with IBM

- Develop and apply world class computing power to analyze years of global T1D research data
 - Identify the risk factors and causes of T1D
 - Ultimately prevent T1D from occurring



PREVENTION

Screening can Identify People at Risk/Reduce DKA



Early screening has been shown to dramatically reduce the risk of DKA at onset and leads to improved A1cs over time

Prevention



Anti-viral vaccine



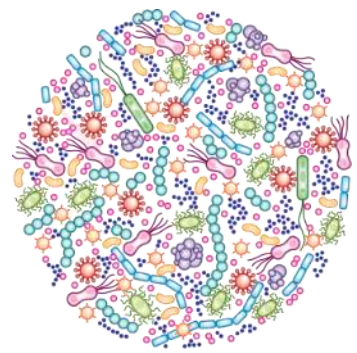
Beta Cells

Beta cell survival

Antigen-specific vaccine



Gut bacteria



Microbiome



Complications

Preserve kidney function
and eyesight through
early intervention



Concept Trial- CGM use in Pregnancy

- Looked at blood sugar control in women with T1D during pregnancy
- Women who used CGMs during and prior to pregnancy improves the health outcomes for mothers and babies
 - Babies less likely to have low blood sugar after birth and half as likely to have complications or require intensive care
 - Improved best practices standard of care



JDRF Advocacy



Turning Type One into Type None

JDRF is the leading global funder of T1D research because of our dedicated supporters and passionate volunteers





THANK YOU