

## **Corporate Presentation**

First-in-class molecules for organ protection in metabolic diseases

March 2020

## **Forward looking statements**

The statements made in this presentation may include forward-looking statements regarding the type 1 diabetes, Alzheimer's disease, cystic fibrosis related diabetes, and non-alcoholic steatohepatitis markets, the development and attributes of investigational and marketed products to treat these diseases and other conditions, and the future operations, opportunities or financial performance of vTv Therapeutics Inc. These forward-looking statements are only estimations based upon the information available to vTv Therapeutics Inc. as of the date of this presentation. Except as required by law, we expressly disclaim any responsibility to publicly update or revise our forward-looking statements, whether as a result of new information, future events or otherwise. Thus, the forward-looking statements herein involve known and unknown risks and uncertainties and other important factors such that actual future operations, opportunities or financial performance may differ materially from these forward-looking statements.

For a more detailed discussion of our risks, see the Risk Factors section in our prospectus filed with the SEC and our other filings with the SEC,

including our most recent 2019 Annual Report on Form 10-K.

Undue reliance should not be placed on forward-looking statements, which speak only as of the date hereof. All forward-looking statements contained herein are qualified in their entirety by the foregoing cautionary statements.

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## We are focused on treating **metabolic diseases** to minimize their long-term **complications** through **end-organ protection**

Our innovative pipeline of **first-in-class small molecules, emphasis on clinical trial execution,** and **long-term sponsor support** are the keys to our success.

#### **Company Overview**

## **Our People**



Jeff Kindler, JD Chairman of the Board

CEO, Centrexion Therapeutics Fmr. Chairman and CEO, Pfizer Fmr. EVP, General Counsel for McDonald's Corporation Fmr. Partner of William & Connelly



**Steve Holcombe, B Sc** President, CEO

35 years experience growing start-up companies

18 years at vTv; founding team member

Negotiated 10 vTv partnerships Raised \$200 million equity capital

Focused on operational excellence: Assembled teams that moved projects forward on time and on budget



Carmen Valcarce, PhD Executive Vice President, CSO

30+ years of R&D experience focused on diabetes and metabolic disease

Managed 12+ INDs

Part of the vTv IPO team

Involved in over 50 due diligence and partnership deals

Ran multiple positive clinical studies

+20 patents

7 years at Novo Nordisk

Trained biochemist and molecular biologist focused on mitochondrial metabolism



**Rudy Howard, BA CPA** Executive Vice President, CFO

20+ years as CFO of 5 publicly held companies, ranging from early stage to \$1B in revenues, and up to 7,000 employees

As CFO, led three companies through IPOs

Raised over \$500M in public markets

Significant role in over 30 M&A transactions

Former partner with PWC



Aaron Burstein, PharmD Senior Vice President, Clinical Development

24+ years clinical research and drug development experience across academia, federal government, large pharma and small biotech companies.

Supported 60+ clinical studies across Phases 1-4

48 peer reviewed scientific publications

Fellowship training in Clinical Neuropharmacology including PK/PD data analysis techniques

## Company Overview Pipeline

Indication	Preclinical Phase I	Phase II	Phase III	<b>Biological Rational</b>
Type 1 Diabetes (T1D)	ТТР399 (GKA)			Liver-selective GKA; no disruption of GK regulatory protein
Dementia with Diabetes	Azeliragon (RAGE)			Small molecule antagonist of RAGE
Cystic Fibrosis Related Diabetes (CFRD)	TTP273 (GLP1-R)			Small molecule oral GLP1-r agonist
Nonalcoholic Steatohepatitis (NASH)	HPP3033 Nrf2/Bach1			Non-electrophilic activator of Nrf2 pathway

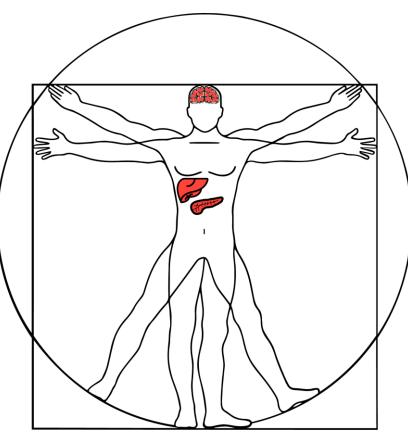
# Our Strategy



#### **Our Strategy**

## Addressing the Impact of Metabolic Diseases on End-organs

Our focused collection of assets are designed to provide protective solutions for the Brain, Pancreas and Liver



1. Raquel Barrio European Endocrinology (2015) 172, R131-R141



#### **RAGE in Dementia with Diabetes**

• Protect against cognitive decline with diabetes



#### **GKA in Diabetes**

- Improve glucose control
- Preserve beta cell function
- Reduce long term diabetic complications (i.e. kidney, heart)

#### **Oral GLP-1r in Cystic Fibrosis Related Diabetes**

- Improve glucose control
- Increase beta cell mass, proliferation and function
- Improve lung function<sup>1</sup>



#### Nrf2/ Bach1 in NASH

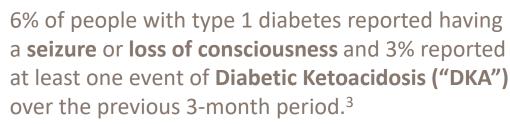
Prevent hepatocyte ballooning and inflammation in NASH

## Diabetes

TTP399 Liver-Selective Glucokinase Activator (GKA) as an Adjunctive Treatment to Insulin in T1D

#### vTv Therapeutics 2020





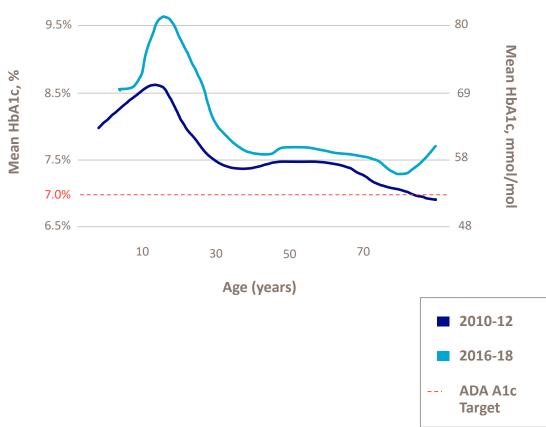
## Nearly **80%** of people with type 1 diabetes **fail to achieve** ADA target A1c levels<sup>1</sup>

**Insulin Alone is Not Enough** 

Type 1 Diabetes / TTP399

Despite improved and more widely adopted diabetes technology, clinical outcomes continue to decline.<sup>2</sup>

e



Patient Mean HbA1c Levels Throughout Time

<sup>1. &</sup>lt;u>Diabetes Technol Ther.</u> 2019 Feb;21(2):66-72. doi: 10.1089/dia.2018.0384. Epub 2019 Jan 18.

<sup>2. (</sup>Foster et al. Diabetes Technology and Therapeutics (2019) 21:66-72; DOI: 10.1089/dia.2018.0384)

<sup>3.</sup> Miller KM, et al. Diabetes Care 2015;38:971-978 | DOI: 10.2337/dc15-0078

## **Limited Treatment Options for a Significant Patient Population**

#### Available type 2 treatments have limited cross-over potential<sup>3</sup>

**30 million** people suffer from T1D globally<sup>1</sup>

**1.5 M** in the US<sup>2</sup>

**Insulin** together with Glucose monitoring is standard of care

Many oral adjunct treatments have been tried for type 1, including SGLTi, but all have shortcomings and only two have been approved and only outside the US

Insulin					
Pramlintide			Type 1 Diabetes	Product	
SGLT-i				•	Oral
Alpha glucosidase			Treatment	•	Impr Redu
GLP-1 mimetics					
Sulfonylureas DPP4-i				Withou	
Metformin				•	Нуро
	GI	Incre	<b>ty risks</b> eased DKA Japan approvals only)	<ul><li>Diab</li><li>Weig</li></ul>	
No effect in T1D	Limited effect MOA requires ir	nsulin se	ecretion		

### TTP399 GKA

#### attributes:

- treatment
- rove time-in-range
- uce insulin dose

#### t:

- oglycemia
- oetic ketoacidosis ("DKA")
- ght gain

1. IDF DIABETES ATLAS 8th edition 2017

2. Global Data. 2019

3. Diabetes Care 2019 Jan; 42(Supplement 1): S90-S92. https://doi.org/10.2337/dc19-S009

## **TTP399 a Potential Blockbuster Drug in Type 1 Diabetes**

## TTP399 Potentially the First Oral T1D Drug to Market in the US as an Adjunct to Insulin for Adults (>18 years)

#### **Unmet Need**

Nearly 80% of people with type 1 diabetes fail to achieve ADA target A1c levels<sup>1</sup>

#### **Target Product Profile**

Once a day, oral tablet (800mg)

Statistically and clinically significant, durable reduction in HbA1c

Improved glycemic control with lower risk of hypoglycemia and DKA than insulin alone

Improvement in one or more of the secondary outcomes:

- Increase the % time in range (70-180 mg/dL)
- Reduce % time in hyperglycemia without increasing % time in hypoglycemia
- Maintain glycemic control while reducing insulin dose

## Market Opportunity

Potential multi-billion dollar market for oral adjunctive treatments to insulin in T1D

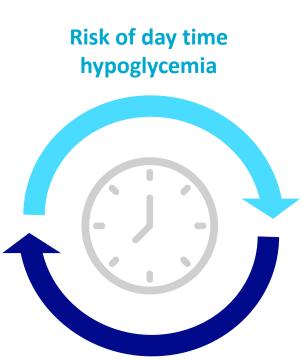
## Type 1 Diabetes / TTP399 T1D is a Burdensome Disease

People with T1D never get a day off from managing it

It requires constant monitoring of blood glucose levels

People with T1D must wear a pump or use injections to dose insulin





Risk of night time hypoglycemia and seizures



It requires constant management, 24 hours a day



Must count the carbs and account for everything they eat



It is exhausting and has long-term dangerous complications



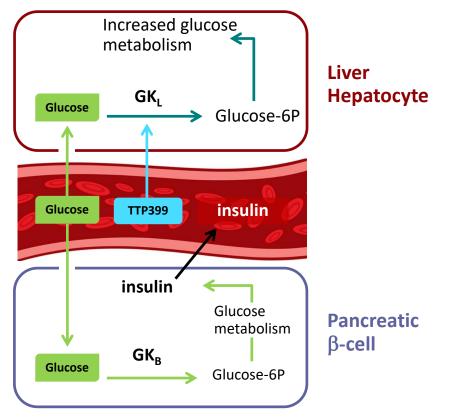
### Type 1 Diabetes / TTP399

## GKA, a Unique Biological Strategy to Support T1D Patients

#### Glucokinase is a critical step in sugar metabolism

Glucokinase is the glucose sensor of the body

Key role in glucose homeostasis supported by strong genetic evidence



### **TTP399: A liver selective Glucokinase Activator<sup>1</sup>**



#### TTP399 activates GK in the liver



TTP399 does not activate GK in the pancreas and preserves beta cell function

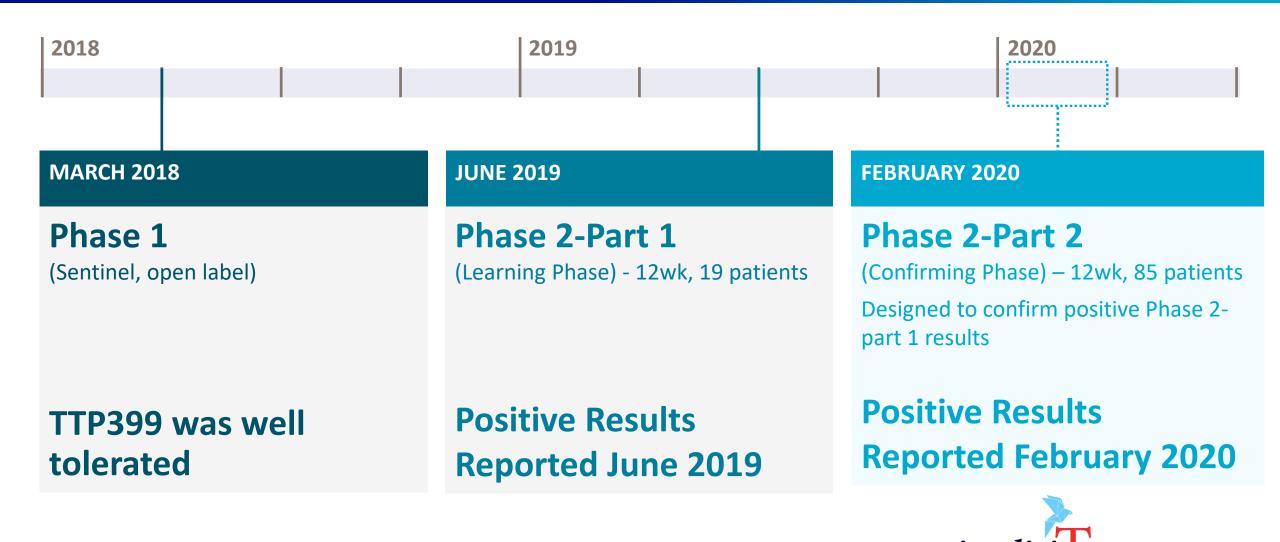


TTP399 does not interrupt the interaction between GK and its regulatory protein

1 Vella A, Freeman J, Dunn I, Keller K, Buse J, Valcarce C. Targeting hepatic glucokinase to treat diabetes with TTP399, a hepatoselective glucokinase activator. Science Translational Medicine 16 Jan 2019

Type 1 Diabetes / TTP399

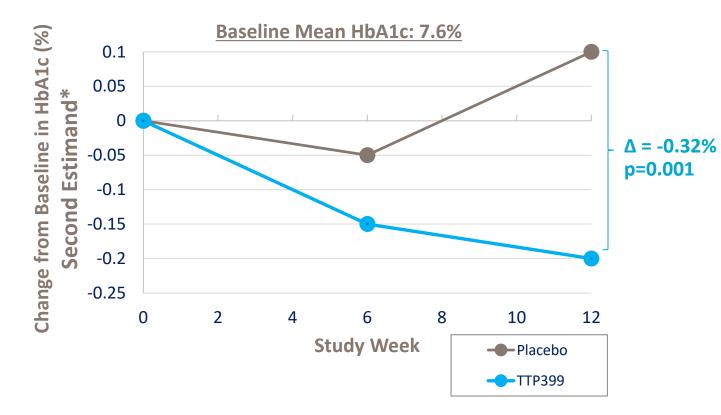
## Simplici- $T_1$ — Adaptive Phase 1b/2 Study Trial Design





## Phase 2 - Part 2 Met Primary Endpoint, Reduced HbA1c by 0.32%

Statistically Significant HbA1C Reduction Without Increases in Ketones or Hypoglycemia



## Safety:

No diabetic ketoacidosis

No incidence of severe hypoglycemia in TTP399 group (1 incident in placebo group)

Fewer symptomatic hypoglycemic episodes in TTP399 group compared to placebo:

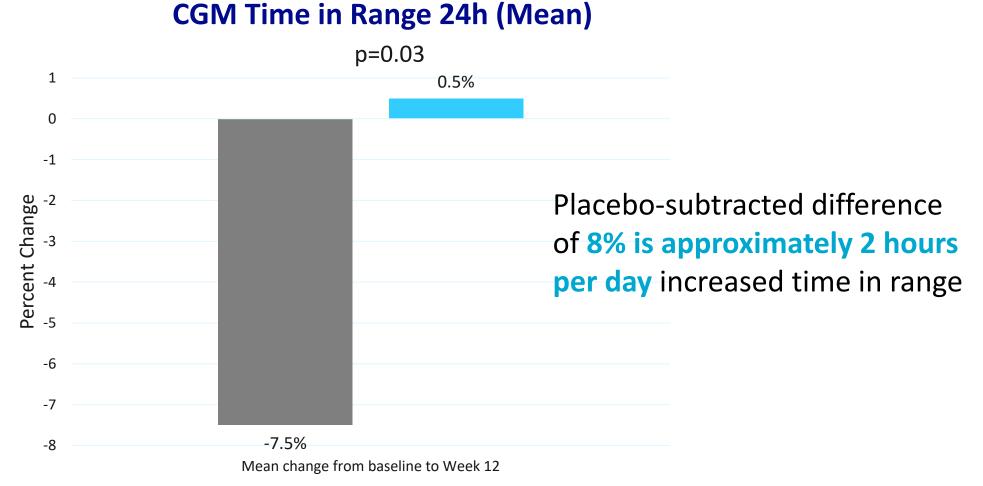
- 2 subjects taking TTP399
- 8 subjects taking placebo

Similar profiles for reported TEAEs between TTP399 and placebo

\*The pre-specified second estimand analysis evaluated the effect on HbA1c for patients without evidence of noncompliance with prescribed treatment who did not administer notable increases of bolus insulin of three or more units. This second estimand analysis was conducted consistent with current regulatory guidance.

Type 1 Diabetes / TTP399

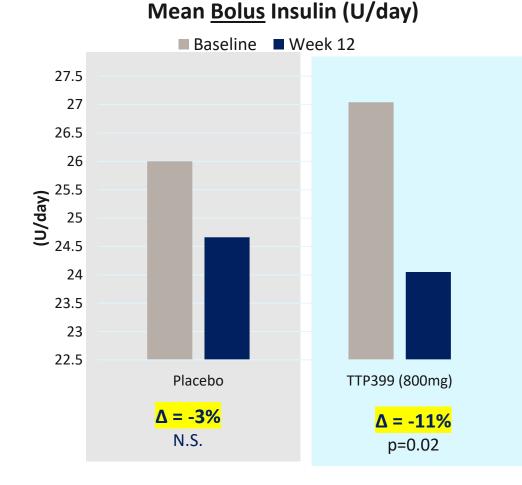
## Phase 2 - Part 2: Increased Time-in-Range by ~2 Hours



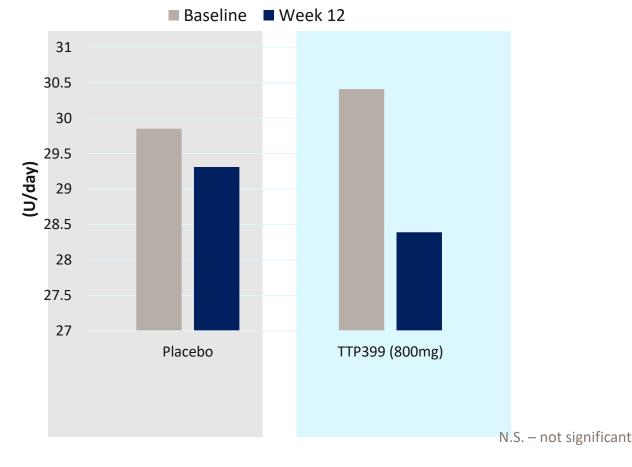
Placebo TTP399

## Phase 2 - Part 2 : 11% Reduction in Total Daily Bolus (Mealtime) Insulin

## TTP399-203 Part 2 Changes in Insulin Dose







## Q2 2020

Meet with the FDA to discuss future studies

## YE 2020

Registration trial/trials (24wk + 24wk OLE) to be initiated

Activities to support NDA package to be initiated

\* Development plan may change based on discussions with regulatory authorities

## Dementia

Azeliragon RAGE antagonist for Dementia with Diabetes



## Brain / Azeliragon (RAGE) The Significance of Dementia with Diabetes

#### Dementia<sup>1,2</sup>

In 2015

**50 M people worldwide with Dementia** Expected to rise to **82M by 2030** And further to **150M by 2050** 

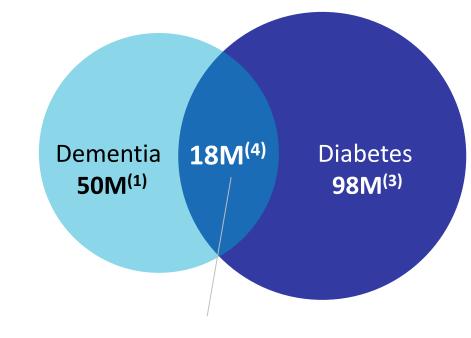
### Diabetes<sup>3</sup>

In 2017

425 million people worldwide have diabetes

→ 98 million of these ≥ 65 years of age
 Prevalence of diabetes expected to rise to 629
 million by 2045

#### **Dementia with Diabetes**



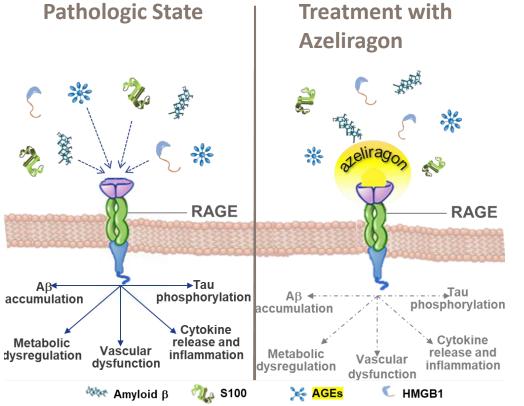
Studies have reported a correlation between T2D and dementia<sup>(5)</sup>

- 2. 2019 Alzheimer's Disease Facts and Figures (source: Alzheimer's Association)
- 3. Globally, number of people with diabetes 65-79 years of age (source: IDF Diabetes Atlas 8th Edition)
- 4. Estimate based on 37% of Medicare beneficiaries in United States age 65 and older with dementia who also have diabetes (Alzheimer's Association. 2018 Alzheimer's Disease Facts and Figures)
- 5. Type 2 Diabetes and Dementia (2018) <u>https://doi.org/10.1016/B978-0-12-809454-9.00001-9</u>

<sup>1.</sup> Globally, number of people with dementia in 2017 (source: Dementia, key facts, WHO, 2017)

## **Targeting RAGE for Treatment of Dementia with Diabetes**

Azeliragon antagonizes the Receptor for Advanced Glycation Endproducts (RAGE), blocking ligands from binding to the receptor and blunting resultant downstream pathologic events



## Well established associations between AGEs / RAGE and diabetic complications

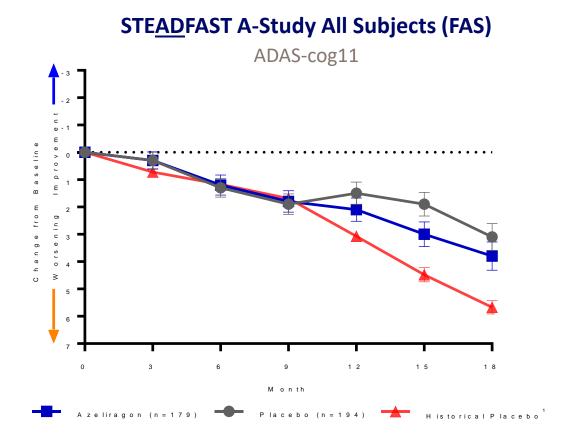
- Advanced glycation endproduct (AGE) accumulation is increased in patients with diabetes and parallels the development of cognitive impairment and dementia
- Increases in AGEs:
  - promote increased expression of RAGE
  - are linked to development of end-organ complications such as retinopathy, neuropathy and nephropathy



## Potential benefits of RAGE antagonism for dementia in diabetes

- Blockade of, and reduction in, microglia activation
- Less brain atrophy
- Less dysregulation of brain glucose metabolism
- Reduction in inflammation
- Preservation of cognition and functional activities

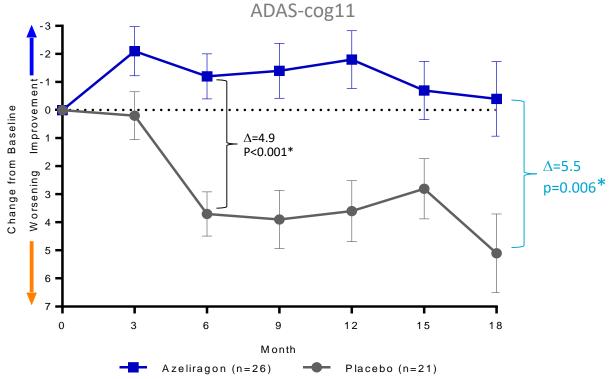
## Potential Beneficial Effect on Cognition in Patients with Elevated HbA1c



## Placebo decline in A-Study FAS markedly less than expected from historical controls. No treatment differences noted.

Type 2 Diabetes: Patients with diabetes (HbA1c  $\geq$  6.5% at anytime during the study) Results are LSMeans  $\pm$  SE based on MMRM model. \*All p values are nominal. FAS =Full Analysis Set

STE<u>AD</u>FAST A-Study Type 2 Diabetes Subgroup (FAS)

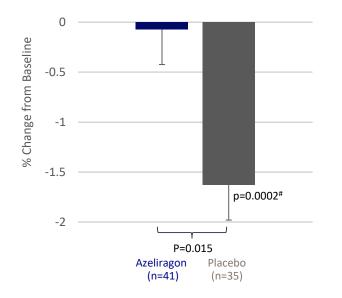


Cognitive benefits in ADA-T2D (HbA1c  $\geq$  6.5%) subgroup are nominally significant and clinically relevant as early as 6 months and through 18 months

22 Data presented on March 30, 2019 at the 14<sup>th</sup> International Conference on Alzheimer's & Parkinson's Diseases held in Lisbon, Portugal <sup>1</sup>Thomas et al. Alzheimer's & Dementia 2016:12;598-603.

## Dementia with Diabetes / Azeliragon (RAGE) Brain MRI, FDG-PET and Plasma Inflammatory Biomarker Results Support Biological Effect in Dementia with Diabetes

#### Less Brain Atrophy Whole Brain

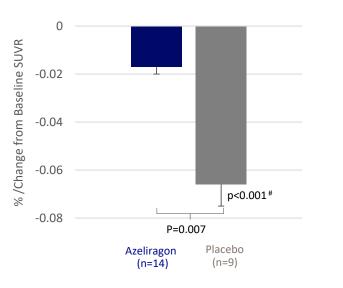


#### Change in ventricular enlargement (%) and total hippocampal volume (%) also trending to favor azeliragon

\*FDG-PET SUVR Presented at 14th International Conference on Alzheimer's & Parkinson's Diseases. March 30, 2019. Lisbon, Portugal

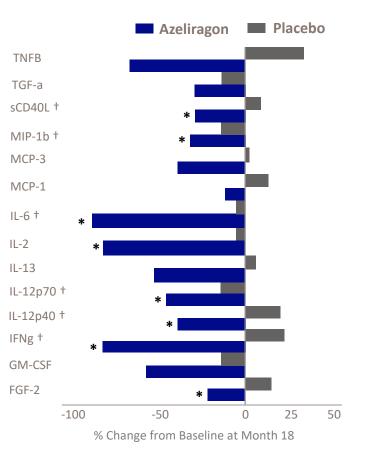
### Less Reduction in Brain Glucose Utilization\*

Month 18



Effect also evident at Month 12

#### Reduction in Plasma Inflammatory Biomarkers



\* Nominal p<0.05 Wilcoxon test † Biomarkers related to RAGE Results are Means

#### Dementia with Diabetes / Azeliragon (RAGE)

## **Elevage Study: Two Studies Conducted Under a Single Protocol**



## Phase 2

### (Part 1 / Proof of Concept) – 6 months, 100 patients

2021

Proof of concept study to confirm the cognitive benefits evidenced in the diabetes subgroup of the STE<u>AD</u>FAST study

## Readout expected 1H 2021

#### 2H 2021

## Phase 3

2022

#### (Design pending)

Demonstrate safety and efficacy with co-primary endpoints of cognition and function to support possible registration

## Study start expected 2H 2021



ClinicalTrials.gov Identifier: NCT03980730

Dementia / Azeliragon (RAGE) Development Plan

NDA enabling studies are **complete** positioning azeliragon for an NDA submission upon successful, positive clinical trials

1H 2021 Complete Elevage Phase 2 Seek FDA guidance Prior to Initiating Registration Trial 2H 2021 Initiate Registration Trial

## Diabetes

TTP273 Oral GLP1-R Agonist for Cystic Fibrosis Related Diabetes (CFRD)

## CFRD/TTP273 Cystic Fibrosis Related Diabetes

**~30,000** patients US; **~70,000** patients worldwide suffer from Cystic Fibrosis (CF)

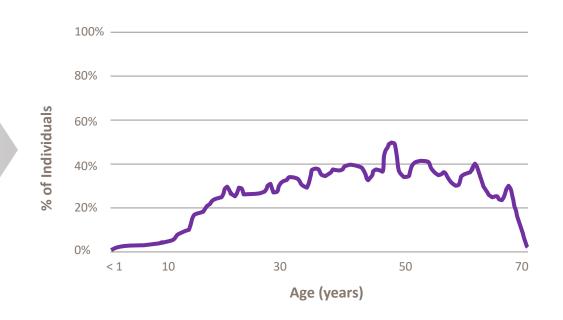
Cystic Fibrosis Related Diabetes (CFRD) is the most common CF co-morbidity<sup>2</sup>:

- ~40% of adults
- ~20% of teens

CFRD is associated with:

- Weight loss
- Lung function decline
- Increased mortality<sup>1</sup>

#### **Cystic Fibrosis Related Diabetes (CFRD)**



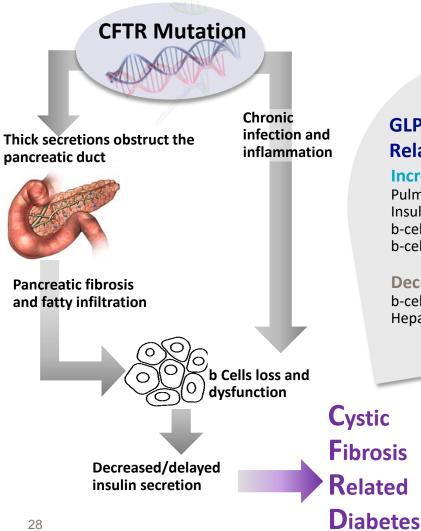
<sup>1. 2017</sup> Cystic Fibrosis Foundation Patient Registry Highlights 2. https://www.ncbi.nlm.nih.gov/pubmed/20202149

### CFRD/TTP273

28

## **GLP-1** Therapy Proposed as Treatment for CF and CFRD

#### **Cystic Fibrosis Related Diabetes**



#### **GLP-1 and Cystic Fibrosis Related Diabetes**

#### **Increases:**

Pulmonary protection Insulin Secretion b-cell neogenesis b-cell proliferation

**Decreases:** b-cell glucose sensitivity Hepatic glucose production

#### **TTP273 Addressing Unmet Need in CFRD**

#### **Benefits of TTP273:**

Small molecule, oral GLP-1r agonist Does not cause nausea and vomiting Weight loss only in overweight patients Potential for combination with other oral therapies

#### **Limitations of Marketed GLP-1 Therapies:**

Peptides dosed by injection

Nausea and vomiting side effects

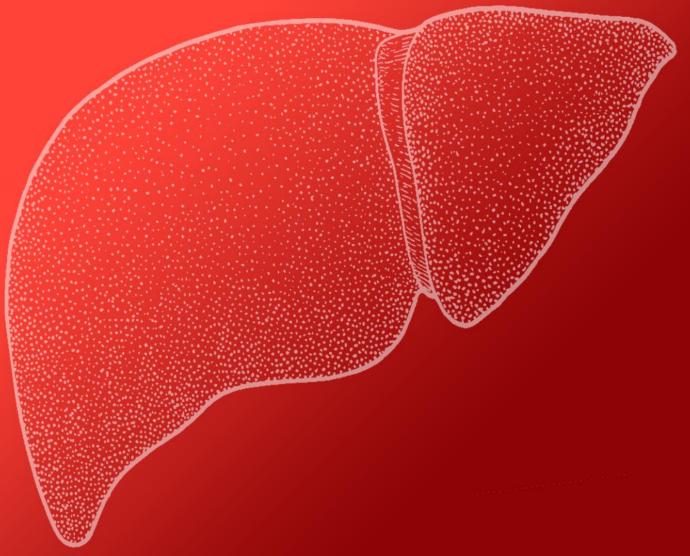
Cause weight loss

**1H 2020** Seek orphan designation

**1H 2020** Apply for Cystic Fibrosis Foundation Clinical Research financial support YE 2020 Initiate Part 1 of adaptive phase 1 study in patients with CFRD or impaired glucose tolerance YE 2021 Initiate Part 2 of adaptive phase 2 study in patients with CFRD or impaired glucose tolerance

## NASH

HPP3033 Nrf2/Bach1 modulator for Non-Alcoholic Steatohepatitis (NASH)



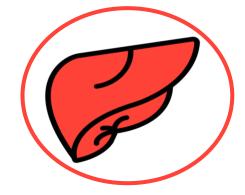
## NASH / HPP3033 Nrf2 Activation – Promising Approach for Organ Protection

First-in-class, potentially best-in-class approach to targeting Nrf2 / Bach 1 pathway

#### vTv's Nrf2/Bach1 modulators, distinct MoA:

- Non-electrophilic molecules
- Keap1 Cys-151 independent Nrf2 activation
- Nrf2 stabilization
- Induction of Nrf2 nuclear import and Bach1 nuclear export
- Effects are not mediated by other transcription factors

vTv compounds demonstrated evidence of target engagement and efficacy in disease-relevant animal models and patient cells (e.g. kidney, heart, lung, liver, brain, eye, bone and blood)



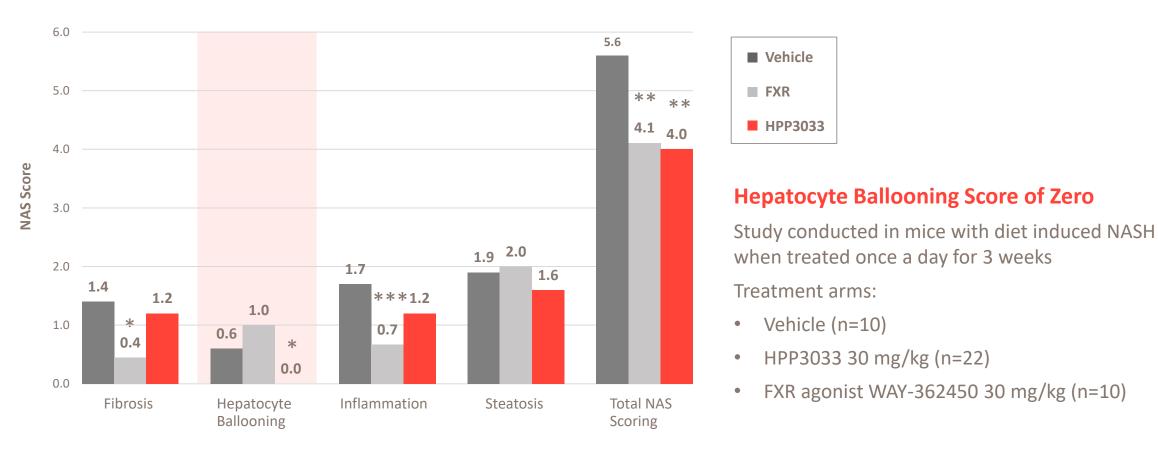
#### Nrf2 benefits and impacts in the liver<sup>1</sup>

Suppressing lipogenesis Supporting mitochondrial function Increasing unfolded protein response Reducing oxidative stress and inflammation

### NASH / HPP3033

## HPP3033 Prevented Hepatocyte Ballooning in NASH Model

MCD NASH Model



\*p<0.05, \*\*p<0.01, \*\*\*p<0.001 vs. vehicle

vTv Therapeutics 2020



2H 2020 Initiate IND Enabling Studies **2H 2021** Select Indication and Submit IND

# Partnered Development Programs



## **Creating Value Through Partnerships**

Asset	Partner	Territory	<b>Target Indications</b>	Economics for vTv
HPP737 (PDE4i)	NEWSOARA 恒翼生物医药	China and other Pacific Rim Countries (excl. Japan)	COPD	Milestones and royalties Utilization of data to advance development in ROW
PPAR- $\delta$ Agonist Program	Reneo	Worldwide	Rare mitochondrial diseases, Fatty Acid Oxidation Disorder, McArdle Disease	Equity interest in Reneo Milestones and Royalties
TTP273 (Oral GLP-1r)	上 华东医药 HUADONG MEDICINE	China and other Pacific Rim Countries (excl. Japan)	Type 2 Diabetes	Milestones and Royalties Utilization of data to advance development in ROW

# Thank you

