

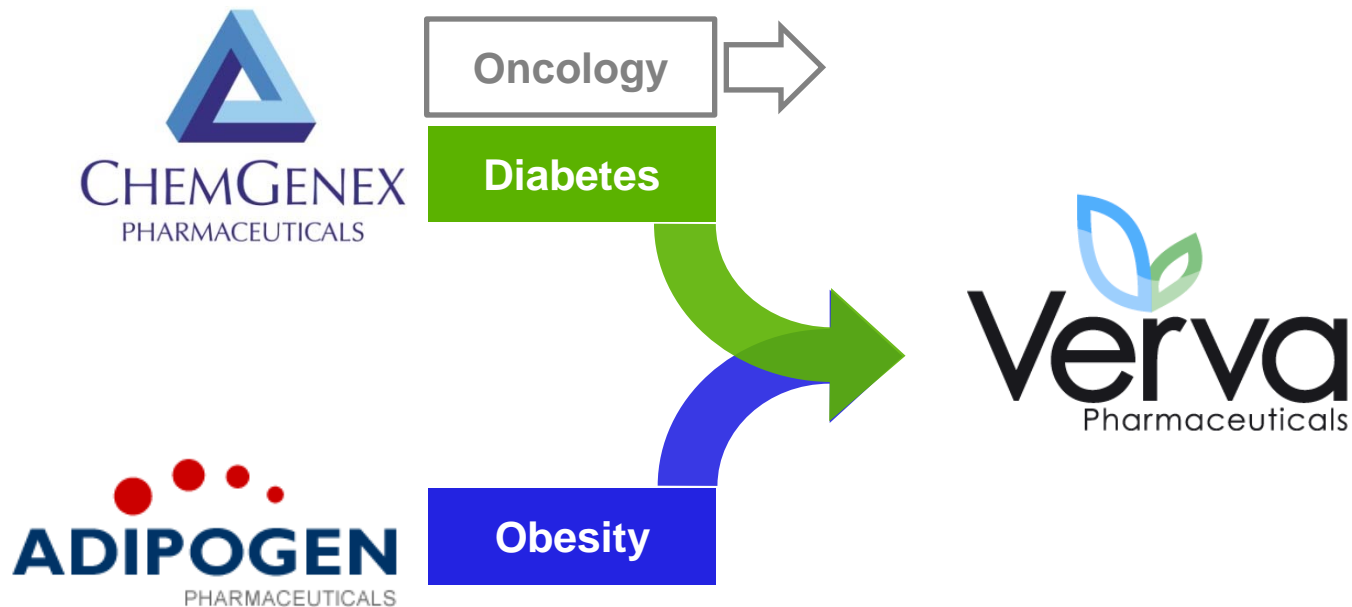


Novel Therapies for Metabolic Disease

Vince Wachter, CEO
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Verva Pharmaceuticals

- Clinical-stage pharmaceutical company formed Dec'07 to develop novel therapies for diabetes and obesity



Verva Leadership Team

■ Board of Directors

- **Ian Nisbet, PhD (Chair)**

- CEO Xenome Ltd.; ex-Millennium, CSL

- **Andrew Baker, PhD**

- GBS Venture Partners; ex-Genentech, Bayer, J&J

- **Michael Cowley, PhD**

- Director of the Monash University Obesity & Diabetes Institute; ex-CSO Orexigen® Therapeutics Inc.

- **John Kurek, PhD**

- Uniseed; ex-BioDiem, Amrad

- **Kathy Nielsen, PhD**

- Queensland Investment Corporation

■ CEO

- **Vince Wachter, PhD**

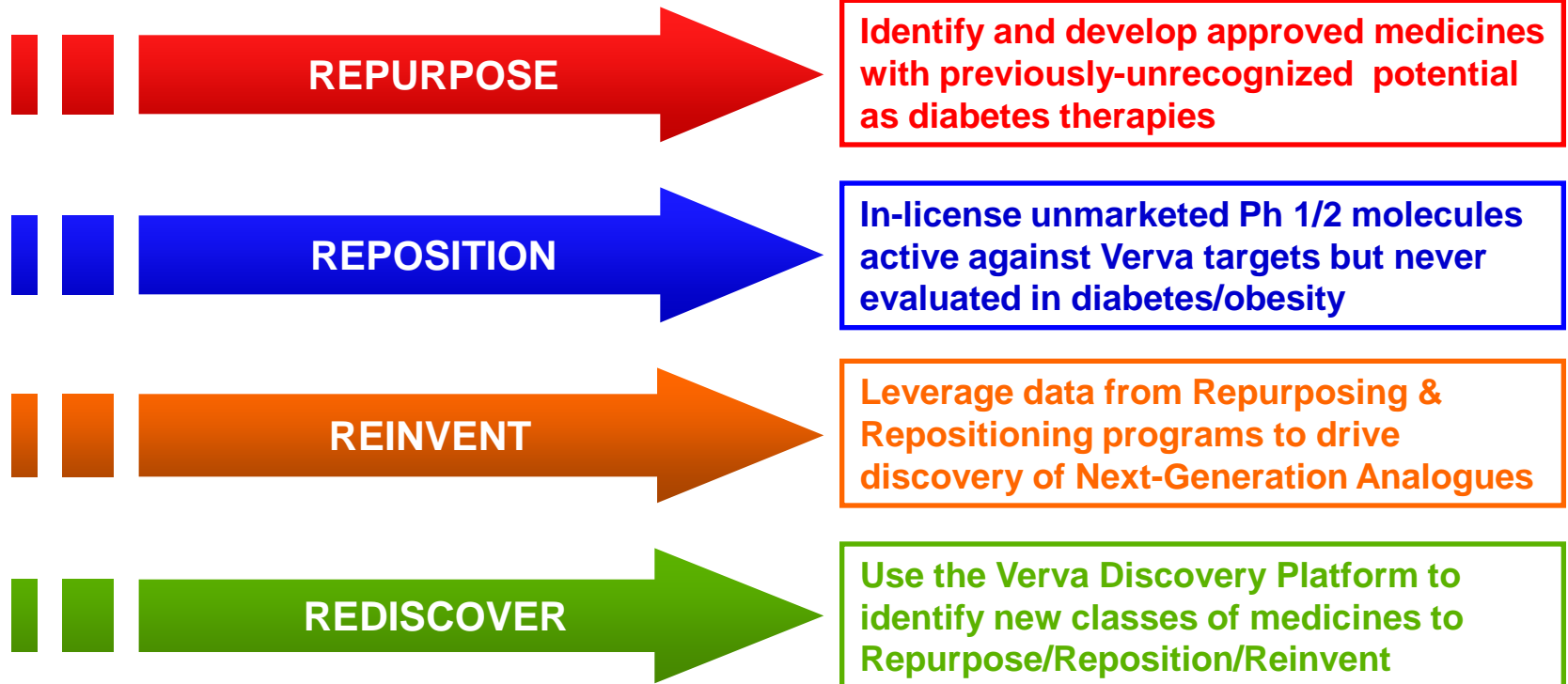
- 15 years US biotech; ex-Adipogen Pharmaceuticals (CEO), Eastman Chemical

Verva Expertise & Infrastructure



- Verva's founding laboratory
 - 10-year relationship
 - Ideal discovery partner
- Experienced scientific team
 - Decades of international metabolic diseases research
- Exceptional *in vitro* & *in vivo* capabilities
 - DIO mice/rats, *db/db* mice, Zucker rats, Israeli Sand Rats
- Verva Management & Board have extensive clinical trials experience

Multi-Tiered Value Generation Strategy



Verva Diabetes & Obesity Portfolio

PROGRAM	Discovery	Preclinical	Phase 1	Phase 2a	Phase 2b
VVP808 (diabetes)	Non-TZD/PPAR Insulin Sensitizer *				
VVP808+metformin	‡				
VVP100X (diabetes)	§				
GES Platform [■]					
FGFR (obesity)	ASOs †				

* Clinical repurposing of molecule previously approved in an unrelated indication

‡ Potential synergy observed in preclinical models

§ Proprietary insulin sensitizers based on VVP808 structure & mode-of-action

■ Target- and mechanism-independent diabetes discovery

† Prevents fat formation: aspects of IP licensed to ISIS Pharmaceuticals

Verva Diabetes Opportunity

- **Multi billion dollar worldwide diabetes therapy market**
 - **Expected to double in the next 7 years**
- **Current therapies limited by safety, cost and loss of efficacy**
 - **Developmental products primarily “me too” drugs directed towards existing targets and modes-of-action**
- **Significant market demand for novel insulin sensitizers**
 - **TZD/PPAR insulin sensitizers (Avandia®, Actos®) dominated the oral therapy market prior to identification of safety issues and recent withdrawal**

VVP808 is a new non-TZD/non-PPAR insulin sensitizer

Verva Value Propositions

- **VVP808: non-TZD/non-PPAR insulin sensitizer**
 - **Extensive market interest in new, safer insulin sensitizers**
 - **International pharma interest**
- **VVP808 insulin sensitizing target**
 - **Significant pharma interest & stand-alone value proposition**
 - **Increased value with VVP808 clinical validation***
- **VVP100X analogues**
 - **Improved, proprietary insulin sensitizers based on VVP808 structure and mode-of-action**
 - **Increased value with VVP808 clinical validation***
- **GES Diabetes Discovery Platform**
 - **Discovery & development collaborations**
 - **Increased value with VVP808 clinical validation***



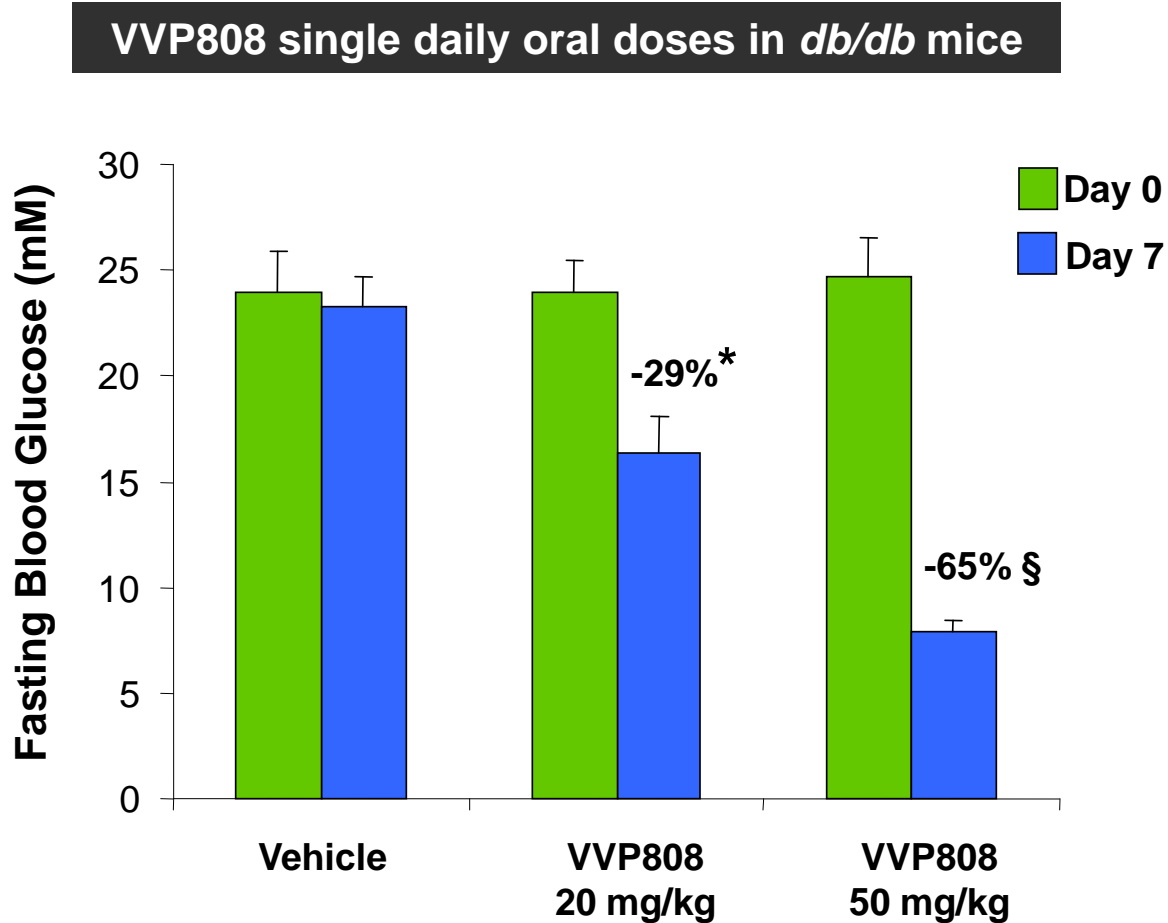
VVP808 – A New Insulin Sensitizer

VVP808 Clinical Repurposing

- **40+ years of clinical use in an unrelated indication**
 - **Enzyme inhibitor**
 - **Only marketed US, Canada, Argentina**
 - **Established long-term safety profile**
 - **Limited current use; never evaluated as a diabetes therapy**
 - **No reported cardiovascular side-effects**

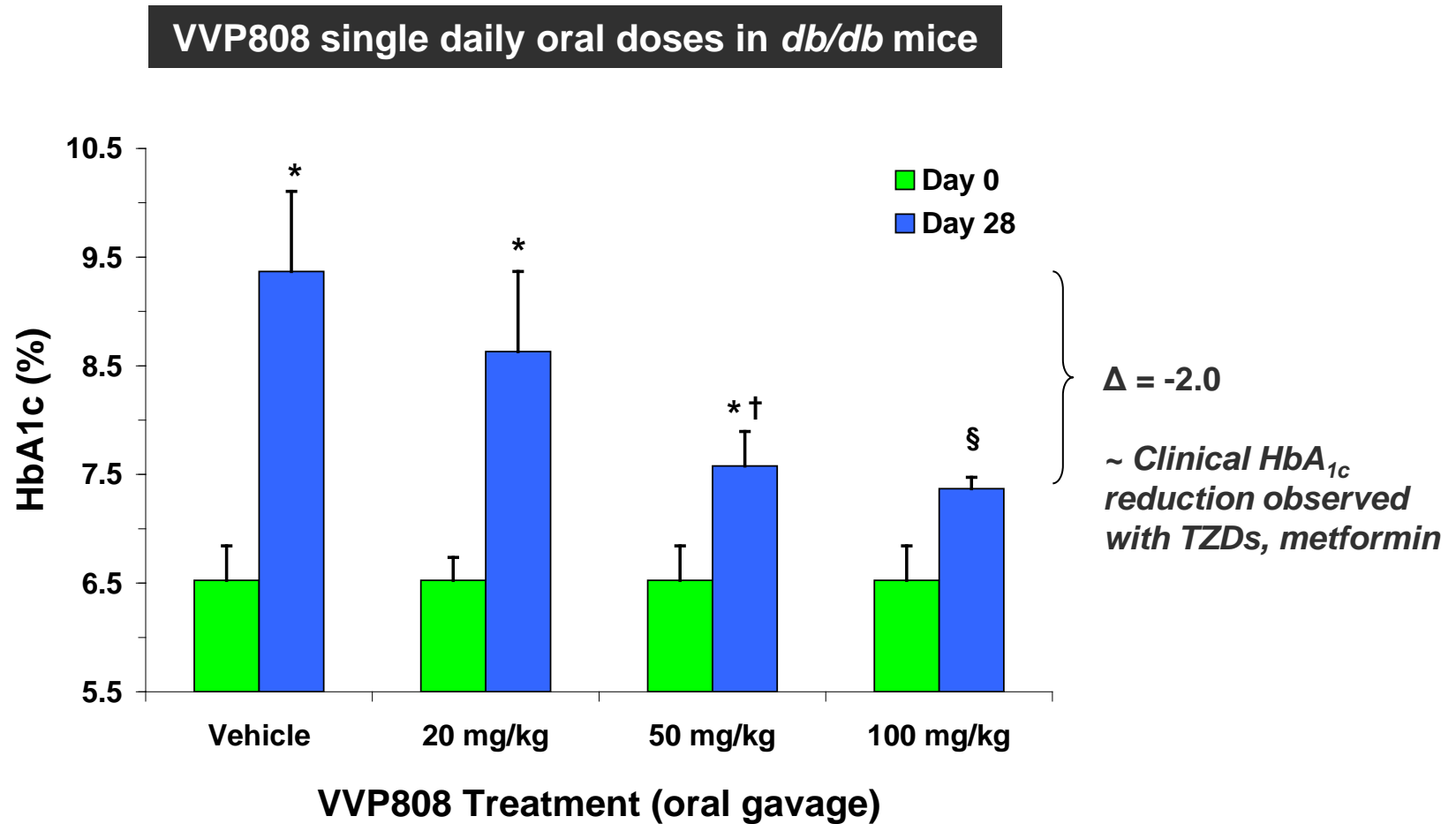
- **Diabetes activity is not due to the known enzyme inhibition**
 - **New insulin sensitizing target**
 - **Opportunity for dose and PK/PD differentiation**
 - **Avoid effects associated with known enzyme inhibition**

VVP808 Lowers Blood Glucose



Compared with Day 0: * $p=0.0008$, § $p=0.00004$

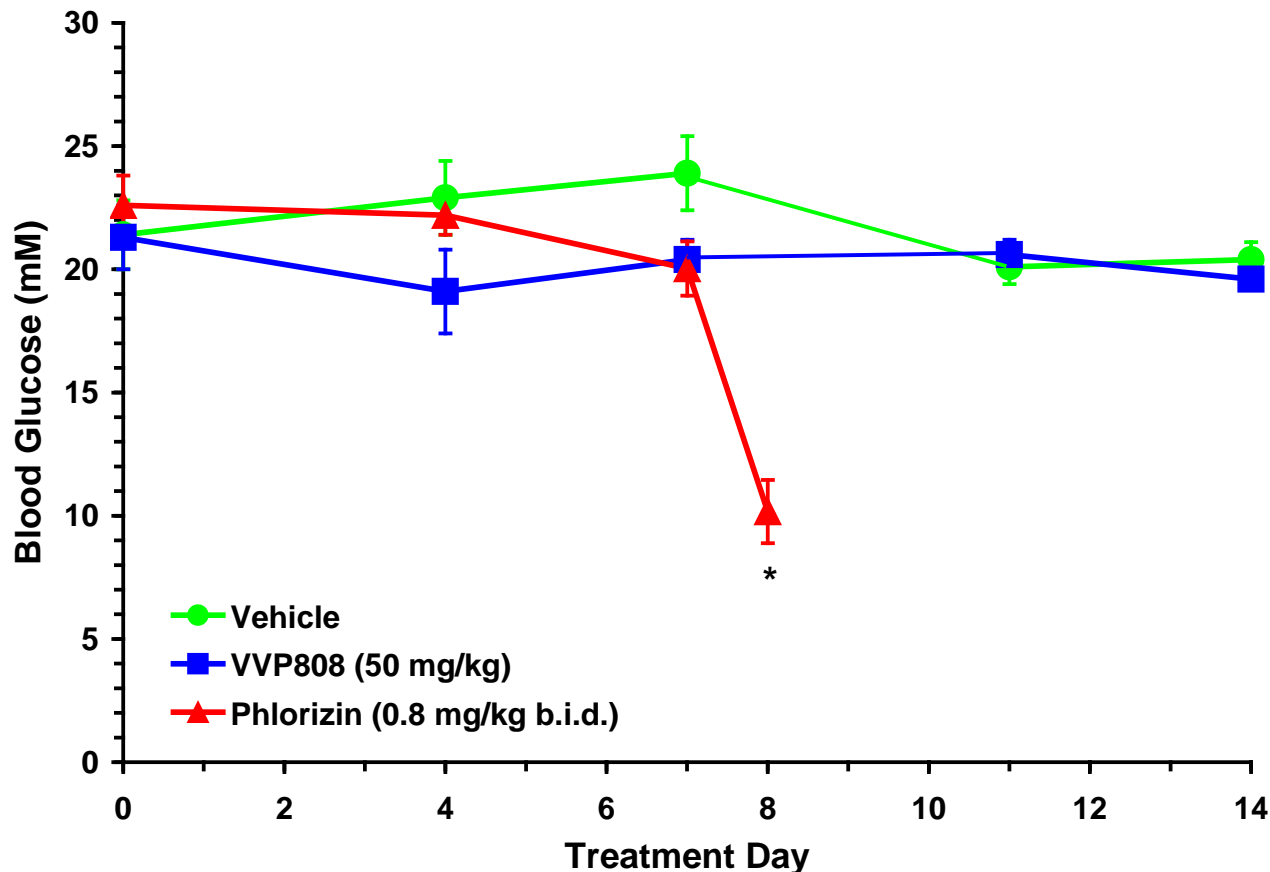
VVP808 Lowers HbA_{1c}



* $p \leq 0.04$ vs. day 0 † $p = 0.06$ vs. vehicle § $p = 0.04$ vs. vehicle

VVP808 Requires Insulin For Activity

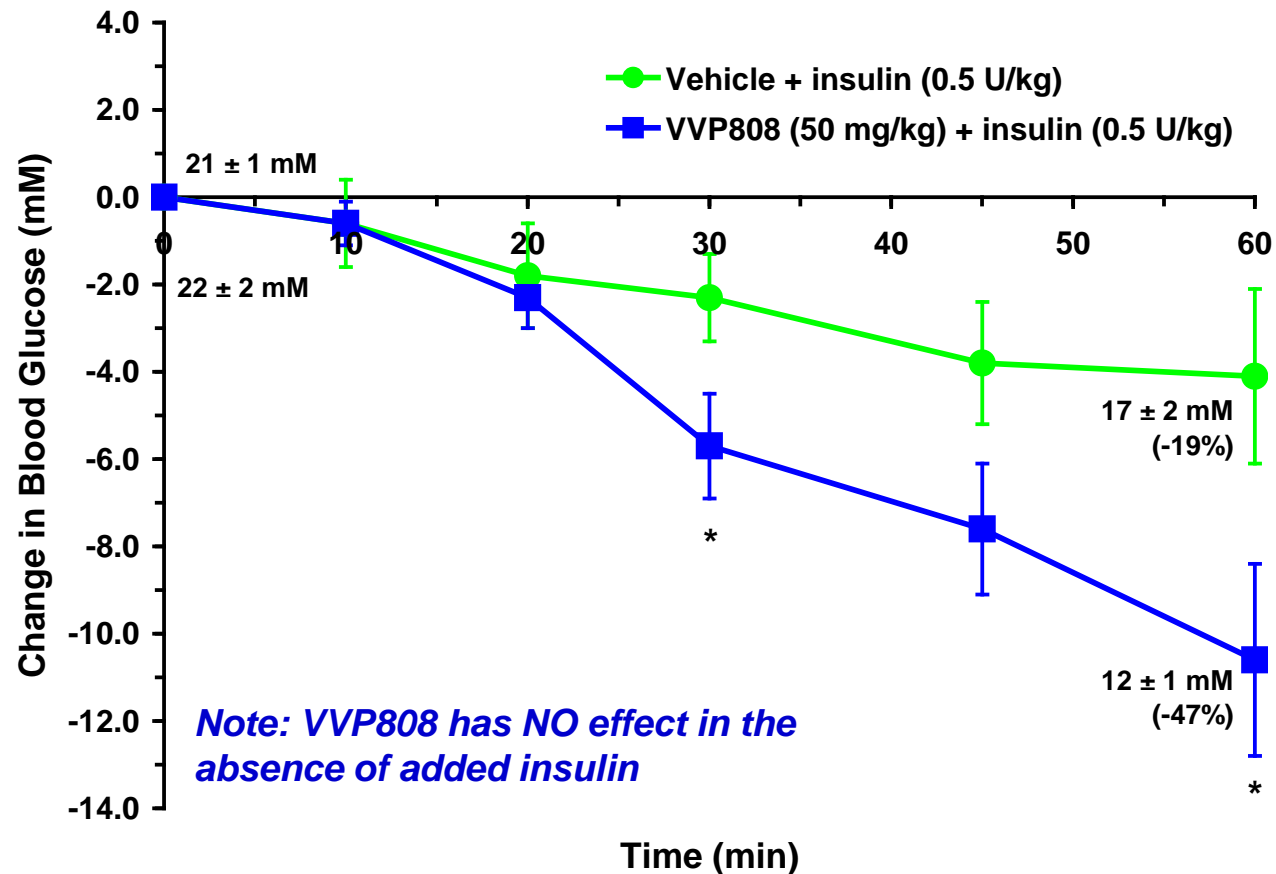
Sprague-Dawley rats rendered diabetic by STZ injection (60 mg/kg) 8 days prior to 14 days VVP808 treatment



* Phlorizin positive control reduces blood glucose by elevation of glucose urinary excretion

VVP808 - A Novel Insulin Sensitizer

SD rats rendered diabetic (no insulin production) by STZ injection 60 mg/kg/day x 8 days) prior to 14 days VVP808

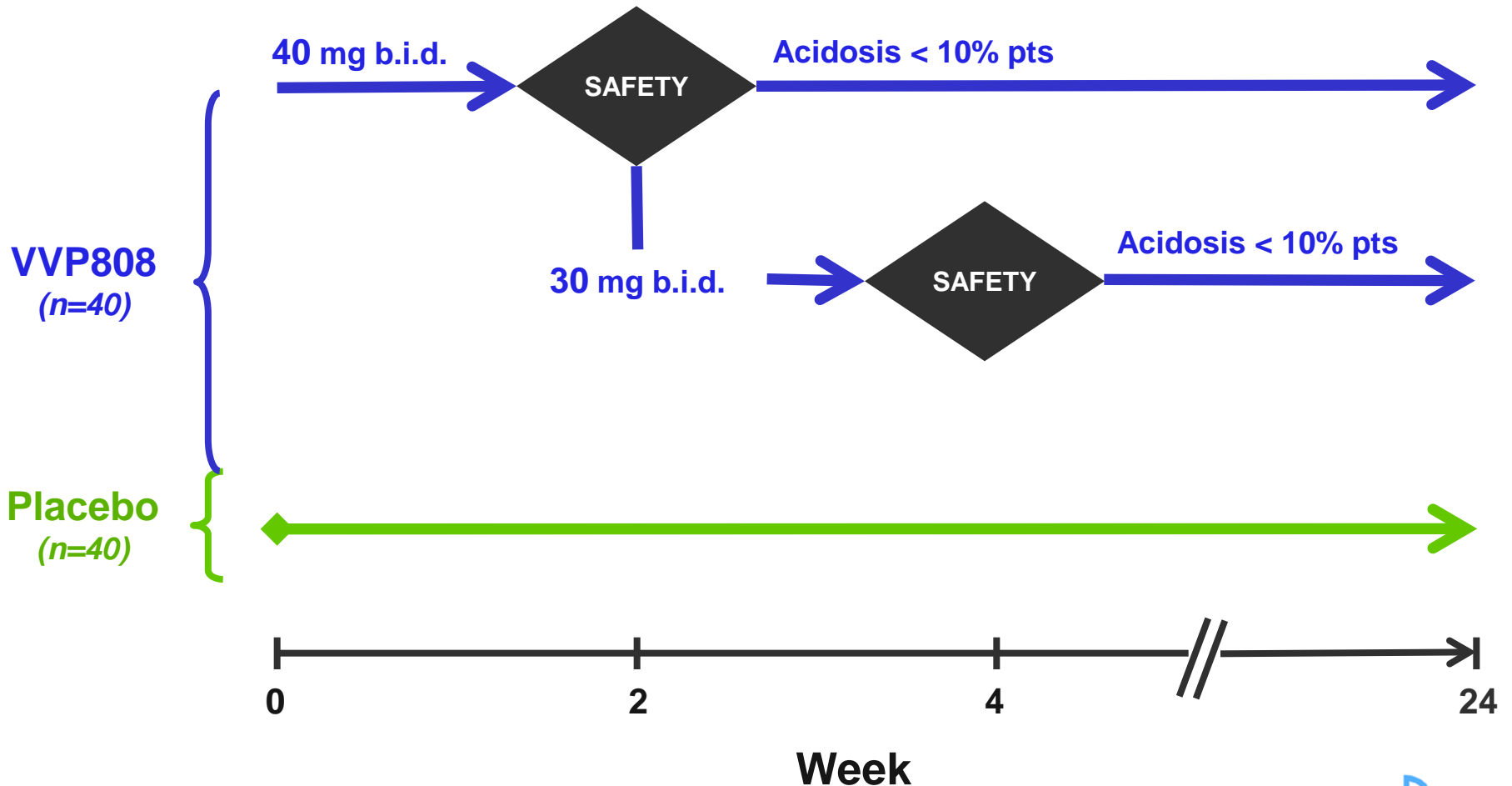


VVP808 Clinical Development

- **Phase 2a clinical proof-of-concept study**
 - **Safety and efficacy of VVP808 in diabetes patients who are:**
 - **Not taking other anti-diabetic medications; or**
 - **Only treated with metformin**
 - **Ethics approval obtained under the Australian CTN system**

- **Key objectives**
 - **Safe administration to diabetes patients**
 - **Efficacy at lower doses than used in the approved indication**
 - **Reduction in HbA_{1c} (0.5%), FPG, PPG**
 - **Weight loss, improved lipid profile**

VVP808-002 Clinical Trial



* Current approved doses are 50-100 mg b.i.d. or t.i.d.

VVP808 Current Progress

- **Study commenced February 2010**
 - **3 sites in Victoria, Australia**
 - **2 new sites opening November 2010**
- **Approximately 50% enrolment to date**
 - **Proposed interim analysis Q1/2 2011**
 - **Anticipated Study Completion Q3 2011**
- **No drug-attributable AEs or SAEs to date**

VVP808 Multiple Clinical Outcomes

- **Product opportunity**
 - Alone or in combination with metformin
- **Validates diabetes target**
 - Keen pharma interest
- **Validates and directs VVP100X program**
 - Analogues also useful in target characterization program
- **Validates discovery platform**
 - Facilitate R&D collaboration

VVP808 Differentiators

Feature	VVP808 Advantage
New diabetes MOA	→ Non-TZD/PPAR insulin sensitizer Decreased HGP
Long history of clinical use	→ Favourable safety profile Improved with lower doses
Additional benefits possible	→ Weight loss Synergy with metformin
Only marketed in N. America Limited current use	→ Low risk of off-label prescribing ROW
Simple structure; low COGS	→ Competitive, 'reimbursement friendly' pricing at good margin
IP differentiation required	→ Lower doses; combinations; modified-release forms

VVP808 Product Development

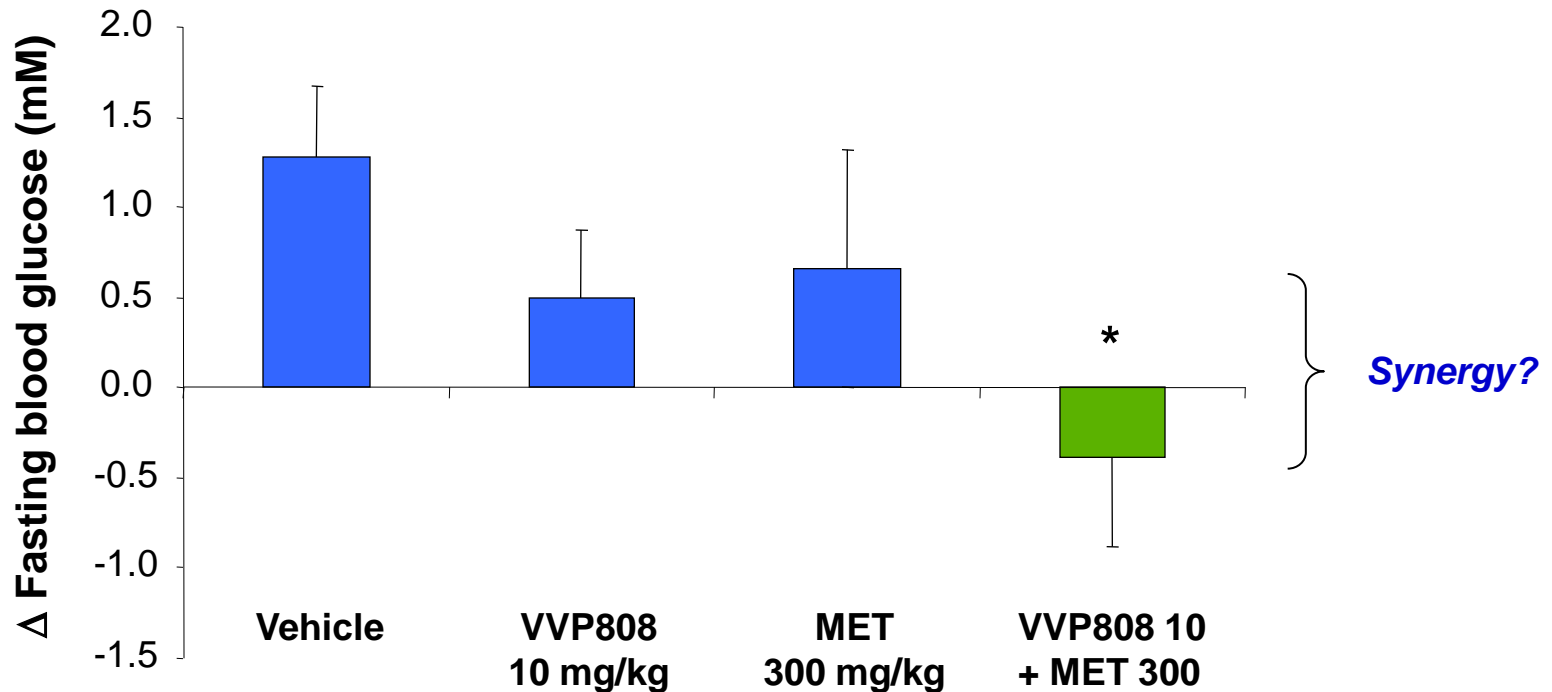
- **Ideal VVP808 diabetes product will employ significantly lower dose than currently used**
 - **Minimize enzyme inhibition and related side-effects**
 - **Opportunity for modified release dosage forms**
 - **Once-a-day dosing e.g. XR formulation**
 - **Transdermal patch for overnight use**
- **VVP808 + metformin combination product**
 - **Potential synergy allows efficacy & safety improvements**
 - **Reduce metformin dose and prevent dose escalation**
 - **Potential weight loss**



Preclinical Programs

VP808-Metformin Combination

Combination therapy (single daily oral doses x 14 days)
reduced fasting blood glucose in DIO mice



* $p = 0.005$ vs. vehicle

VVP808 + Metformin

- Patentable dosage form
 - Metformin combinations are standard-of-care
- Potential benefits
 - Synergy provides for reduced doses limited dose escalation
 - Reduced GI side effects
 - Weight neutrality or weight loss
- Merck published partnering interest in
 - “Oral therapies: Best in Class and Novel Mechanisms”
 - “Additive/synergistic in combination with metformin”

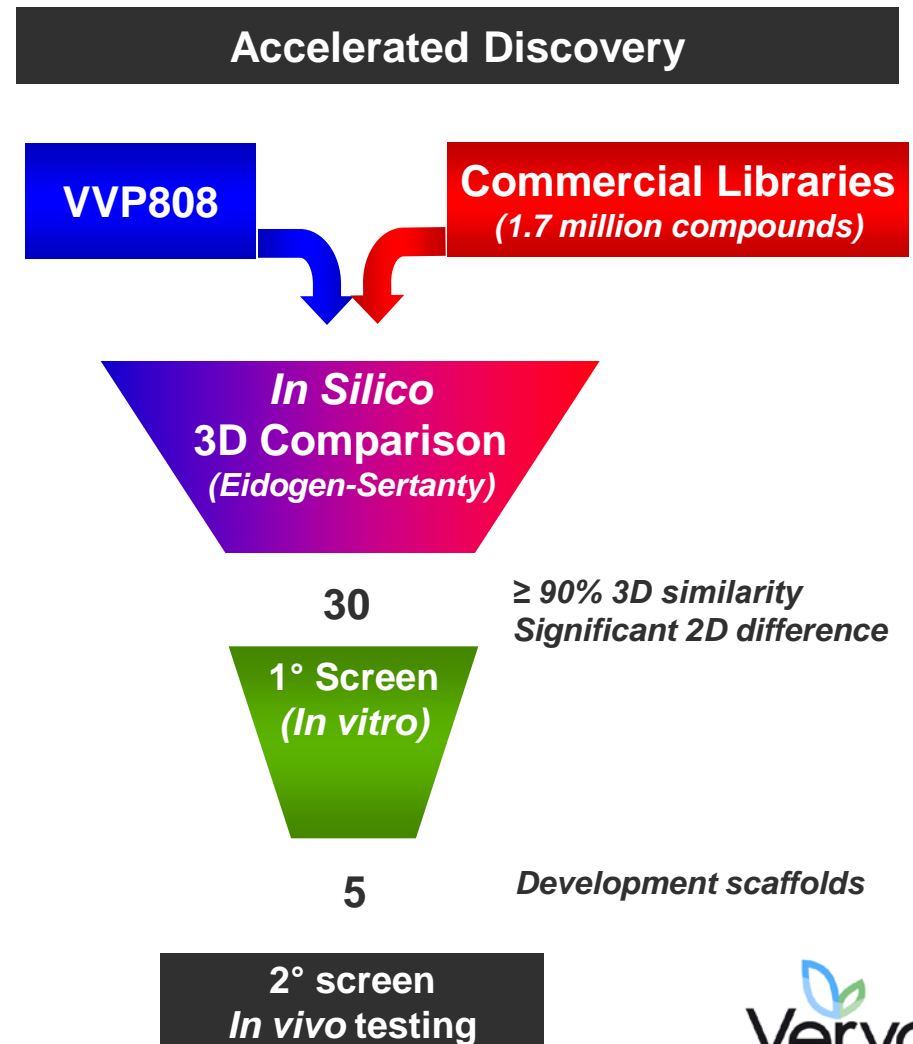
Novel Insulin Sensitizing Target

- VVP808 insulin sensitizing activity is not due to the known enzyme inhibition
 - Related enzyme inhibitors did not lower blood glucose in animal models
- Target identification is a priority
 - Initial studies have identified alternate VVP808 binding proteins in liver extracts
 - On-going effort to confirm and validate target

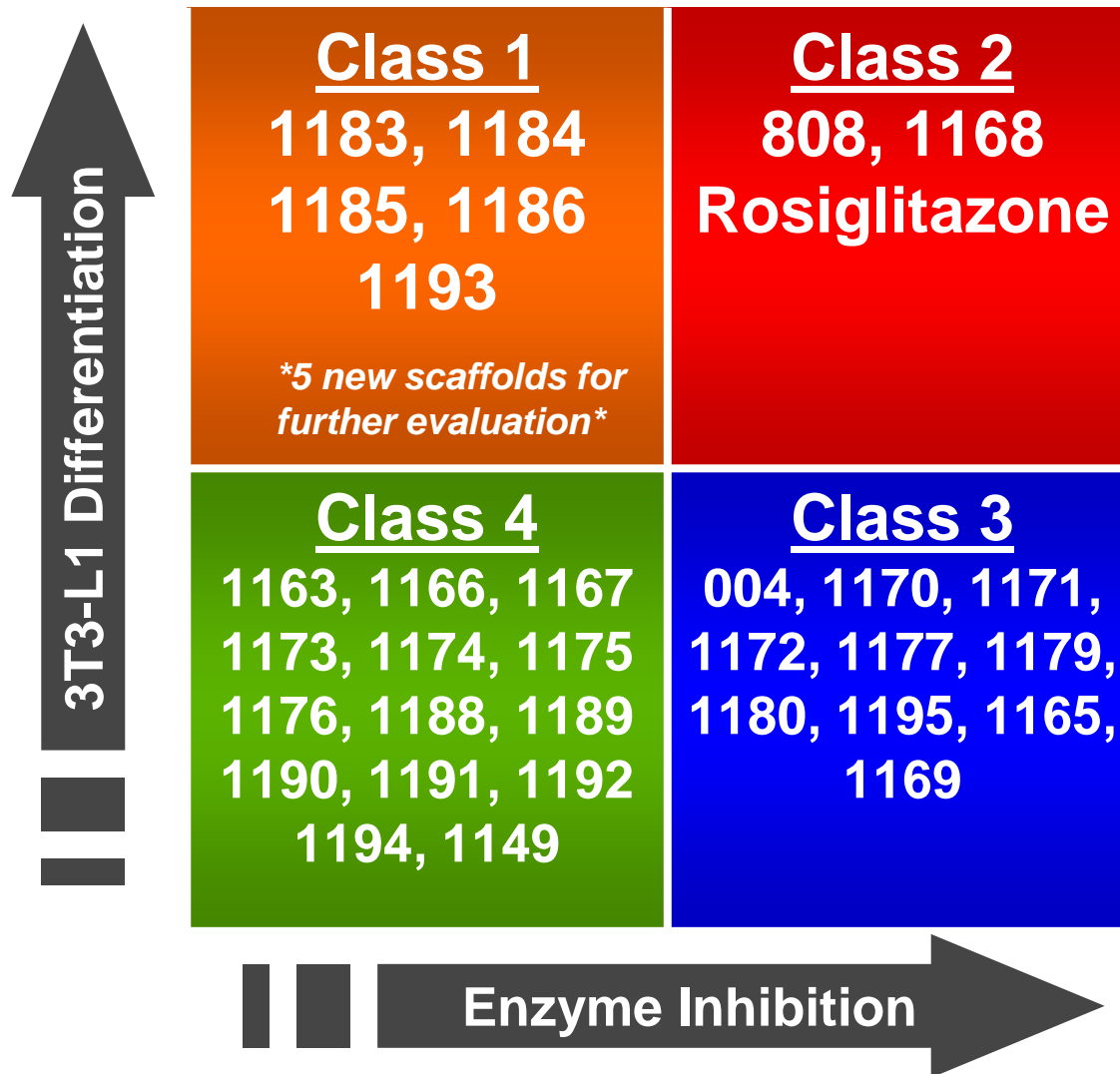
Pharma discussions have identified that a novel insulin sensitizing target is a high value asset

VVP100X: New Drugs From VVP808

- NCEs based on VVP808 structure & MOA
 - Optimize anti-diabetes effect
 - Engineer away from VVP808 enzyme inhibition
 - Improve efficacy & PK/PD
 - Improve safety profile
- Composition-of matter IP
 - Analogues also facilitate target validation program



Preliminary Hit Stratification





Discovery Platform

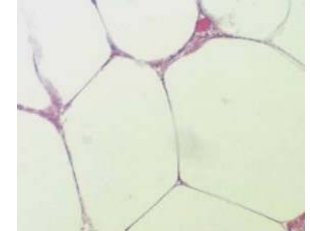
Diabetes Discovery Platform

- **Verva Gene Expression Signature (GES) Technology**
 - A 'fingerprint' of 7-12 genes from different pathways whose expression is modulated when diabetic cells are made healthy
 - Identifies drug effect on multiple disease-associated processes
 - Modulation of multiple processes delivers optimized diabetes therapy

- **GES is a powerful screening tool**
 - Target-, mechanism- and structure- independent
 - Unlock value in partner libraries; rescue 'failed' compounds
 - Knowledge of MOA not required to evaluate diabetes effect
 - Identify previously unrecognized potential for application in diabetes

Verva Gene Expression Signature

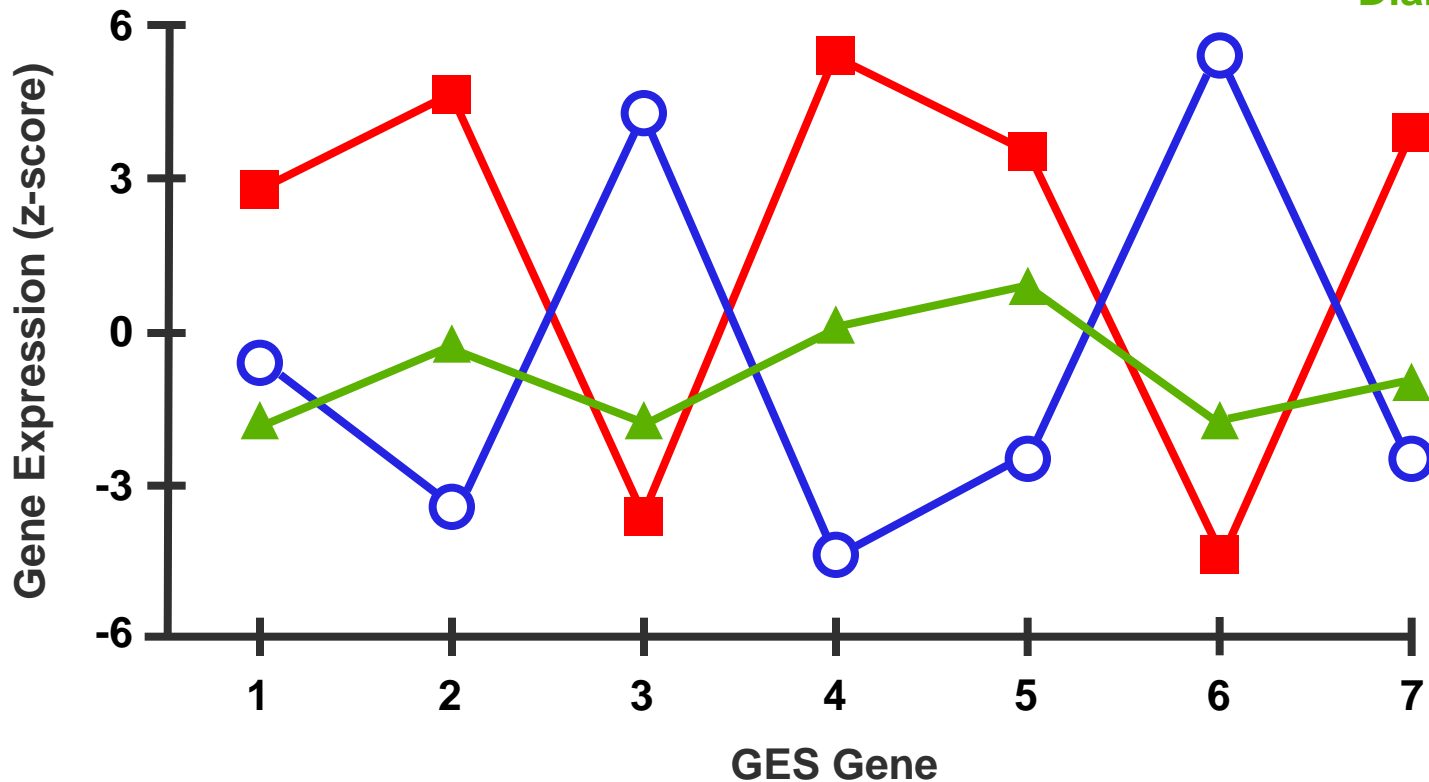
Adipocytes



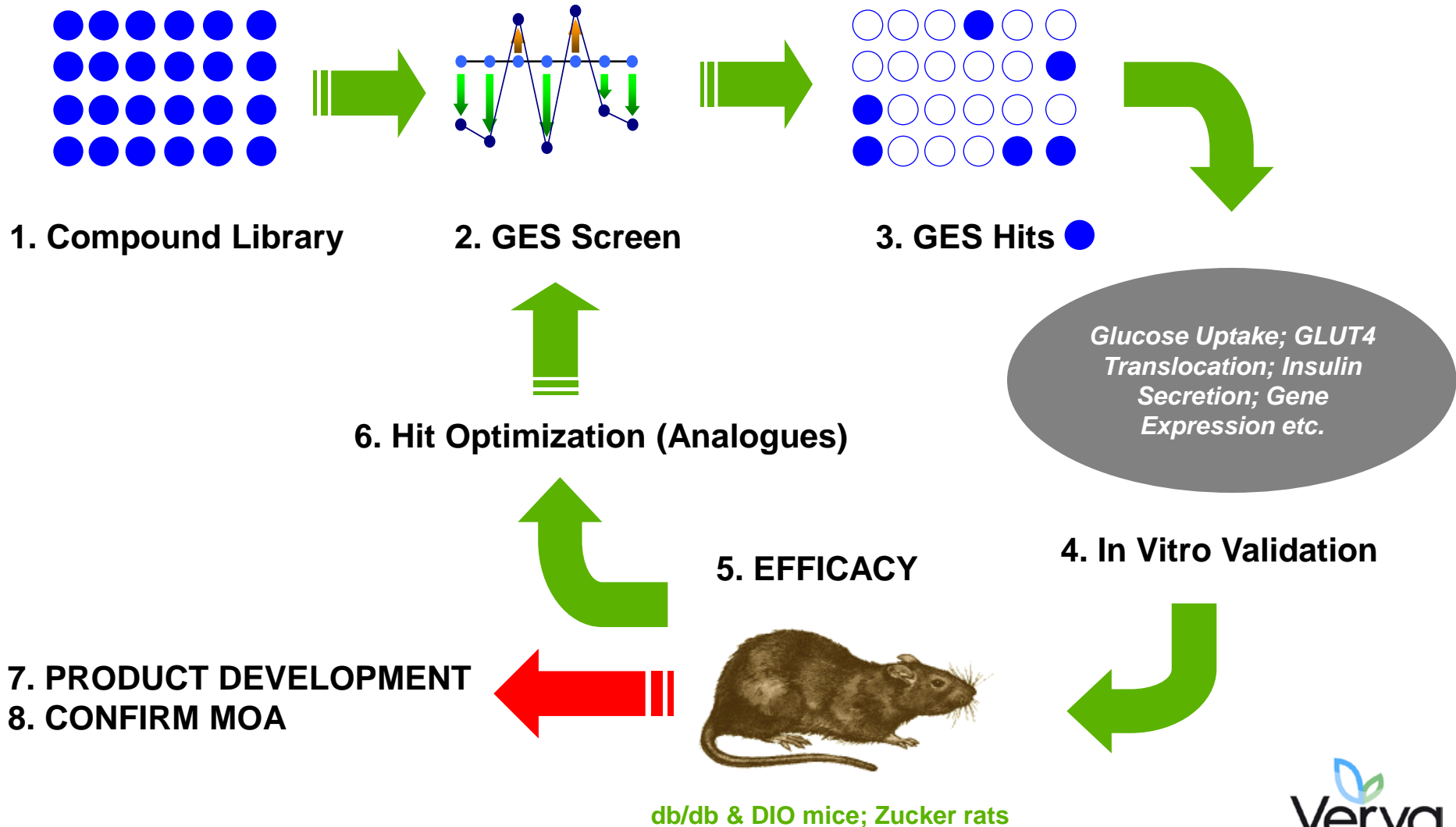
○ - Normal

■ Diabetic

▲ Treated Diabetic



GES-Based Product Discovery



Pipeline Expansion using the GES

- **GES is powerful screening tool**
 - Target-, mechanism- and structure- independent
 - **Unlock value in partner libraries; rescue 'failed' compounds**
 - Knowledge of MOA not required to evaluate diabetes effect
 - Identify previously unrecognized potential for application in diabetes
- **GES is a flexible drug discovery platform**
 - **GES varies with cell type and underlying pathology**
 - May identify therapies optimized for different diabetes etiology



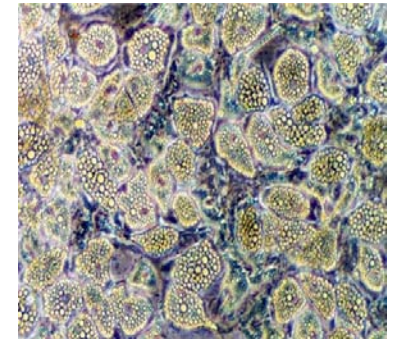
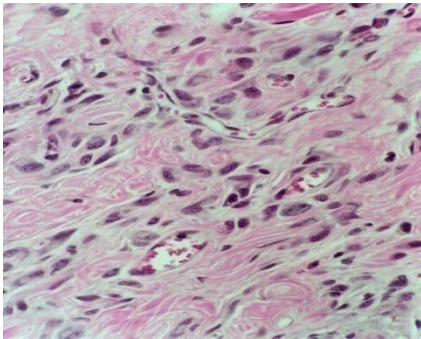
Verva Fat Reducers

Fat Formation

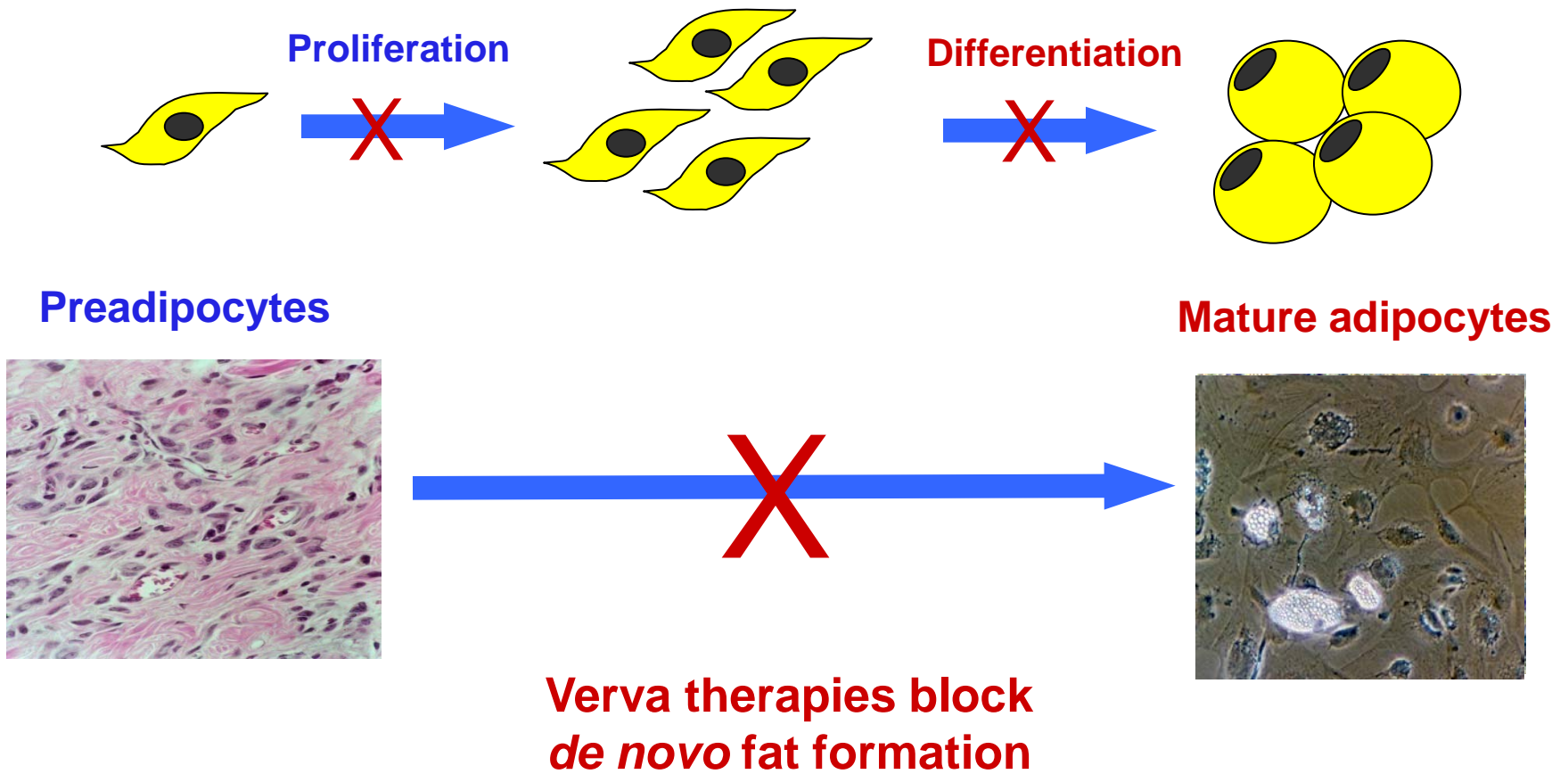


Preadipocytes

Mature adipocytes



Verva Fat Blockers



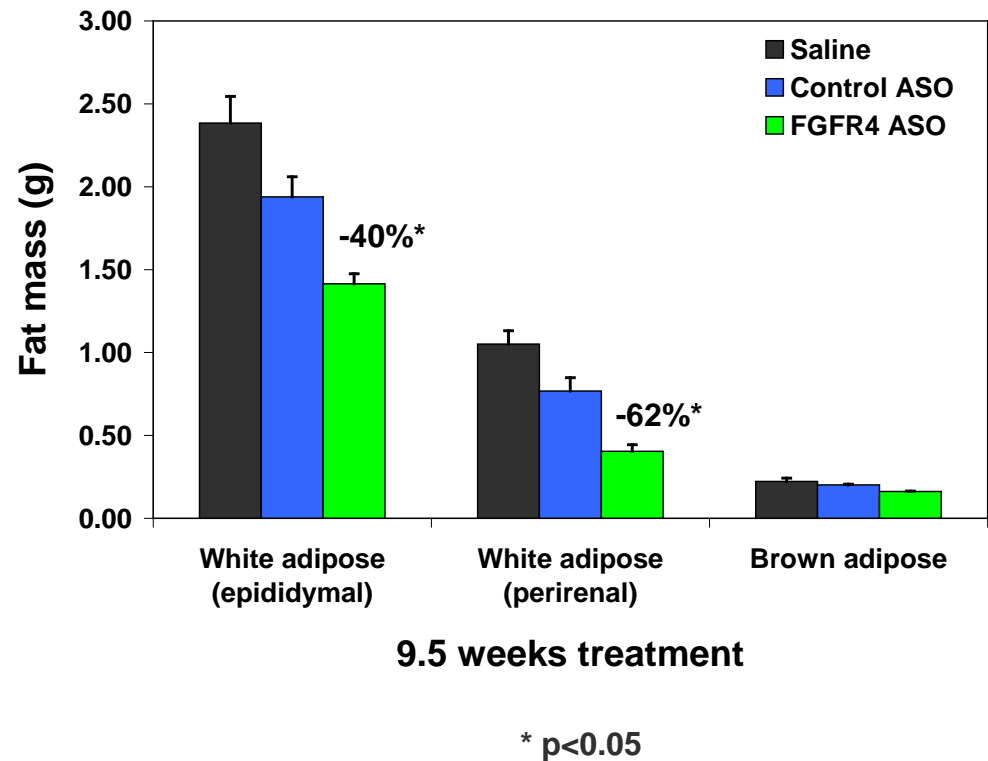
Benefits of Targeting Fat Formation

- **Novel mode of action at the target tissue**
 - Expect longer term efficacy, less resistance
 - Avoid CNS side-effects
- **Additional health benefits**
 - Fat removal can improve cardiovascular profile, reverse diabetes, ameliorate inflammation
- **Multiple clinical applications**
 - Weight/fat loss in obese subjects
 - Prevention of weight/fat gain (e.g. drug induced)
 - Prevention and treatment of diabetes

FGFR – Fat Blocking ASOs

- **FGF-1 is a potent promoter of adipogenesis**
 - Exerts its effects through multiple receptors (FGFRs)
- **Licensed aspects of Verva IP to ISIS Pharmaceuticals to evaluate FGFR ASOs in obesity and diabetes**
 - **FGFR4 ASOs reduced body fat and weight in DIO mice**
 - No effect on food intake
 - Increased metabolic rate
 - Prevented fat gain in lean animals

**FGFR4 ASO (25 mg/kg s.c. q3d)
reduced body fat in DIO mice**





Milestones and Newsflow

Key Milestones & Newsflow

Program	Event	Time
VVP808	Clinical POC study interim data	Q1/2'11
VVP100X	<i>In vitro</i> efficacy	Q2'11
VVP808+MET	<i>In vivo</i> synergy confirmed	Q2'11
Target	<i>In vitro</i> efficacy	Q2'11
VVP100X	<i>In vivo</i> efficacy	Q3'11
VVP808	Clinical POC study final data	Q3'11
Target	<i>In vivo</i> efficacy	Q4'11
VVP808+MET	<i>In vivo</i> safety benefit	Q4'11

Partnering and Exit Strategies

- **Strategic transaction (Q4'11-Q1'12)**
 - **Outright acquisition**
 - **Merger with company in larger market seeking pipeline expansion**

- **Partnerships**
 - **Joint development, licensing or options on product programs**
 - **Potential for multiple regional partners or single WW partner**
 - **Discovery collaborations around the GES platform**
 - **Funded discovery evaluating partner compound libraries**

- **Public Listing**
 - **If market conditions and progress permit**