

Improving Kidney Health Outcomes Lead Program: Varoglutamstat in Diabetic Kidney Disease

January 2025

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Vivoryon: Poised to improve kidney health with varoglutamstat's novel mechanism of action and breakthrough clinical results



Strong scientific base; novel MoA (QPCT/L inhibition); pE-CCL2 data confirms target engagement



Two independent Phase 2 studies¹; compelling long-term kidney function improvement



Extensive safety data package for varoglutamstat with convenient dose escalation scheme



Focused development plan for significant commercial opportunity in DKD and beyond



Additional potential orphan indications e.g. Alport syndrome / Fabry disease

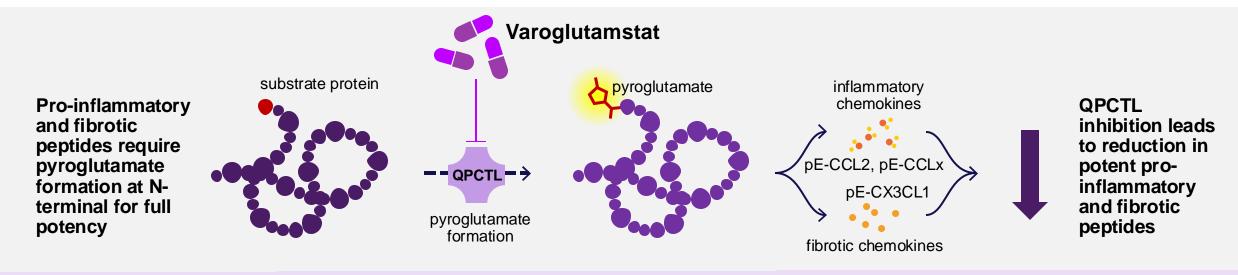


Composition of matter patent protection² expected to 2044+



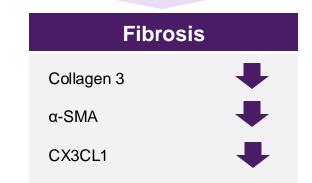
Cash runway into Q3 2025; actively pursuing funding and BD opportunities

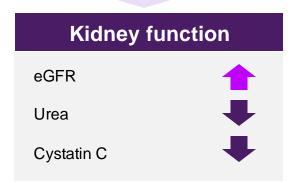
Groundbreaking discovery: Inhibition of QPCTL reduces kidney inflammation and fibrosis, and improves kidney function



Pyroglutamate formation (pE-formation) is exclusively catalyzed by QPCTL (iso-glutaminyl cyclase enzyme)

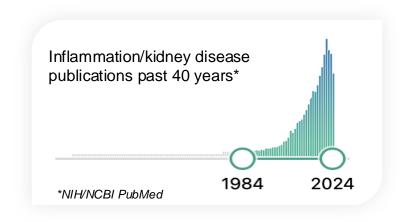
Inflammation					
pE-CCL2	•				
IFNγ	•				
ΤΝΕα	•				







Robust research supports development of QPCTL inhibitors in inflammatory and fibrotic kidney and liver disorders



Pharmacological inhibition of the chemokine CCL2 (MCP-1) diminishes liver macrophage infiltration and steatohepatitis in chronic hepatic injury

Baeck et. al. 2012

N-terminal pyroglutamate formation in CXC3CL1 is essential for its full biologic activity

Kehlen et. al. 2017



Chronic treatment with the (iso-)glutaminyl cyclase inhibitor PQ259 is a novel and effective approach for glomerulonephritis in chronic kidney disease

Kanemitsu et. al. 2021

- Discovered and established pE-CCL2 as direct biomarker for QPCTL engagement
- Dose-dependent decrease of pE-CCL2 levels directly correlates with eGFR improvement

Inhibition of Glutaminyl Cyclases alleviates CCL2-mediated inflammation of non-alcoholic fatty liver disease in mice

Cynis et al., 2013

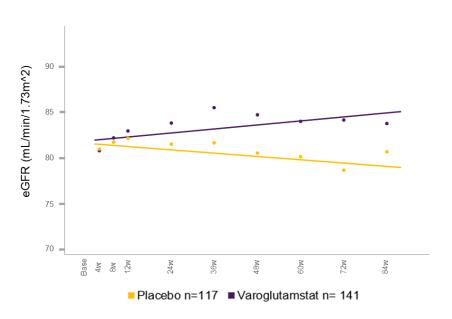




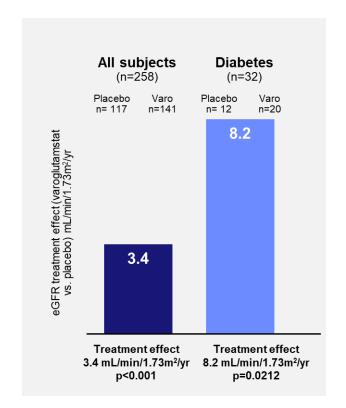
VIVIAD: Breakthrough clinical results show statistically significant improvement in prospectively defined eGFR over two years

Validated regulatory primary endpoint

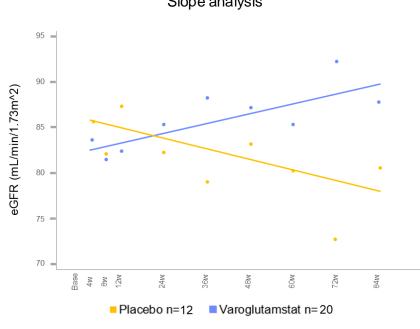
All subjects Change in eGFR over time Slope analysis



Magnitude of effect of slope analysis

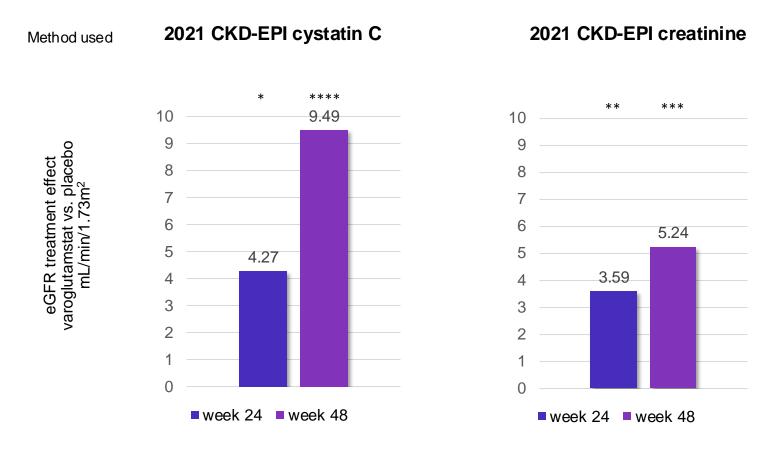


Diabetes Change in eGFR over time Slope analysis



VIVIAD: Consistency of results using diverse and validated methods for eGFR assessment

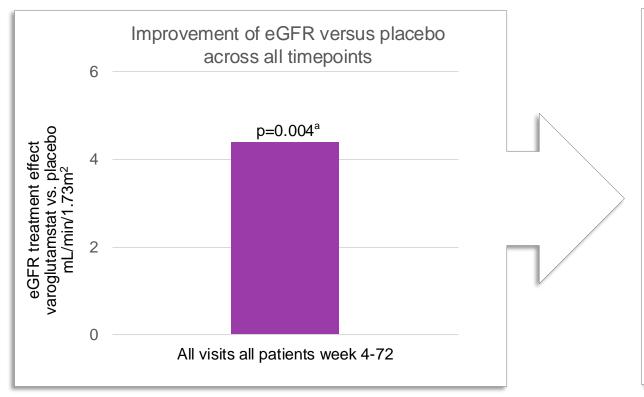
Sensitivity analysis: baseline adjusted treatment effect of varoglutamstat versus placebo

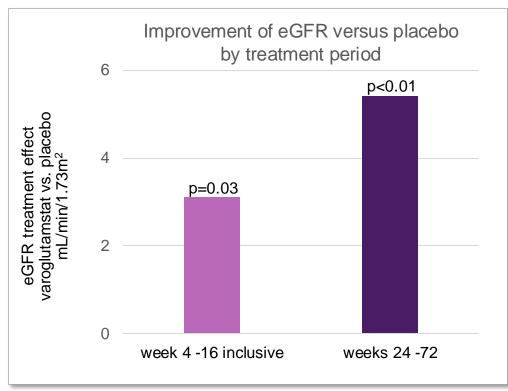


^{*} significant difference (with p<0.05) ** significant difference (with p<0.01) *** significant difference (with p<0.001) **** significant difference (with p<0.0001) MMRM analysis: Change from baseline difference between varoglutamstat and placebo at specific timepoints from dedicated biomarker samples



VIVA-MIND: Statistically significant and clinically meaningful improvement vs. placebo in kidney function measured by eGFR (total population; MDRD)





Average improvement across all visits and all patients >4mL/min/1.73m²

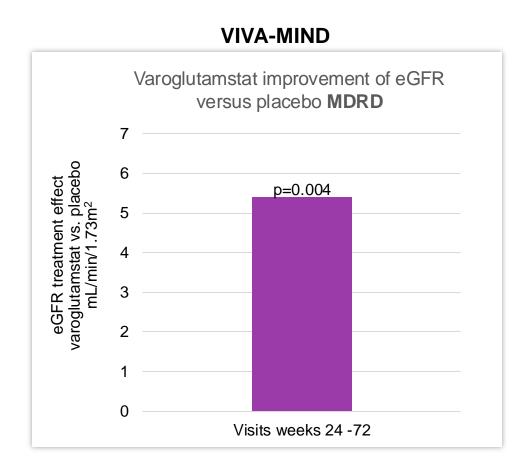
Effect size in the first 16 weeks of treatment approx. 3mL/min/1.73m² and between 24 and 72 weeks above 5mL/min/1.73m²

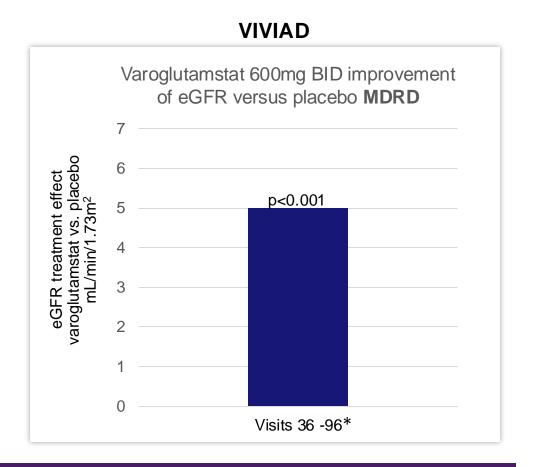
Placebo n=57, Varoglutamstat 600mg BID n=52

MMRM analysis: Change from baseline, difference between varoglutamstat and placebo



eGFR Results Comparison VIVA-MIND - VIVIAD





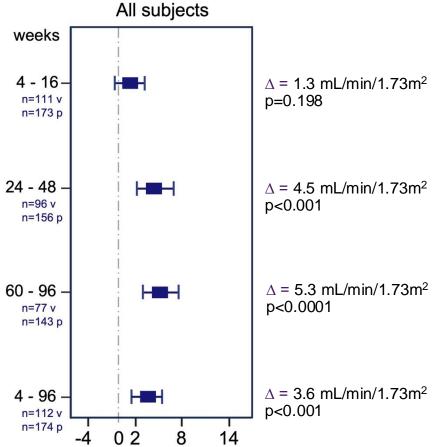
eGFR improvement of varoglutamstat versus placebo was consistent and statistically significant and clinically meaningful in both studies

MDRD calculation for eGFR, MMRM analysis: Change from baseline, difference between varoglutamstat and placebo



VIVIAD and VIVA-MIND: Meta-analysis shows strong effect on eGFR

Difference of change from baseline between varoglutamstat (v) and placebo (p) of eGFR (MDRD)



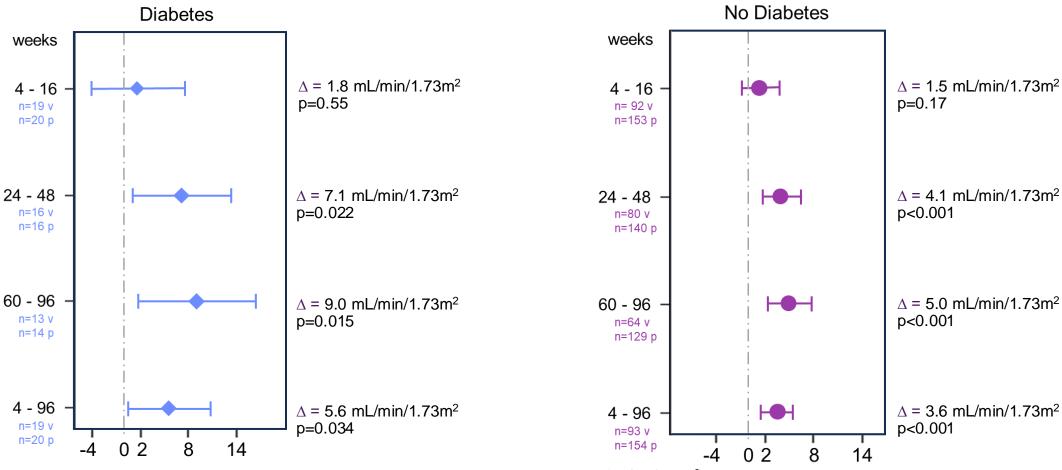
Treatment effect and 95% confidence intervals (mL/min/1.73m²)

- 0: No treatment effect; >0: Improvement of eGFR (MDRD);
- n: Number of patients in the varoglutamstat (v) and placebo (p) group

- Meta-analysis includes all patients on placebo and all patients randomized to 600mg varoglutamstat BID of both studies (patients randomized to 300mg BID in VIVIAD not included)
- Improvement of eGFR kidney function is demonstrated in the total population
- Difference of change from baseline between varoglutamstat and placebo becomes significant at week 24
- Treatment effect is maintained for 2 years

VIVIAD and VIVA-MIND: Meta-analysis shows a larger effect size in diabetes versus non-diabetes patients

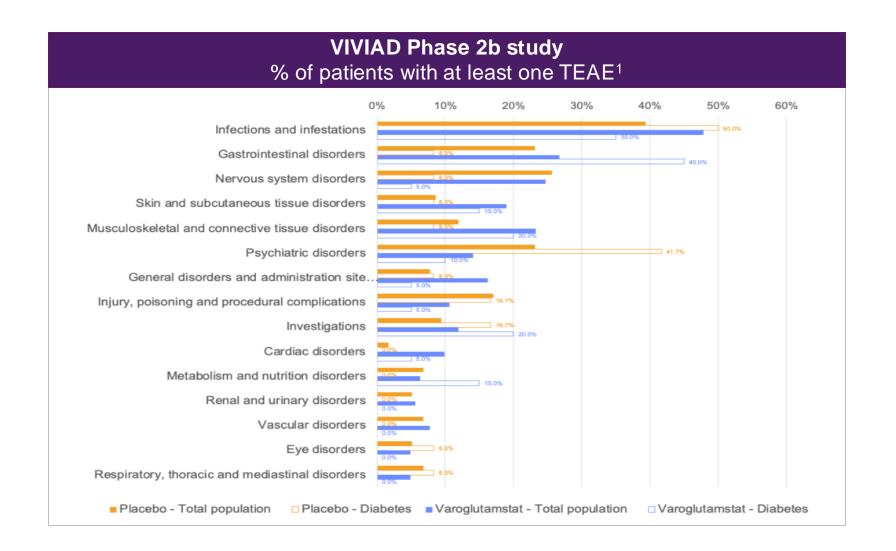
Difference of change from baseline between varoglutamstat (v) and placebo (p) of eGFR (MDRD)



Treatment effect and 95% confidence intervals (mL/min/1.73m²)
0: No treatment effect; >0: Improvement of eGFR (MDRD);
n: Number of patients in the varoglutamstat (v) and placebo (p) group



VIVIAD: Excellent safety profile consistent across two years of study duration



VIVA-MIND: No new safety signals identified in second Phase 2 study

VIVA-MIND Phase 2 study						
Adverse event category (%)	Varoglutamstat (n=53)*	Placebo (n=56)*	Overall (n=109)			
any TEAE	84.9	78.6	81.7			
any related TEAE	30.2	32.1	31.2			
TEAE by severity						
mild	26.4	41.1	33.9			
moderate	47.2	28.6	37.6			
severe	11.3	8.9	10.1			
serious TEAE	15.1	8.9	11.9			
related serious TEAE	0	1.8	0.9			
TEAE leading to any study drug dose modification (excluding discontinuation)	5.7	7.1	6.4			
TEAE leading to study drug discontinuation	7.5	3.6	5.5			
TEAE leading to death ¹	1.9	0	0.9			

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Extensive safety package (# / duration)

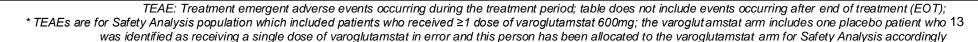
Pharmacology / Phase 1

- Phase 1 study: large trial with 205 subjects
- Human ADME / mass balance study completed

Phase 2 double-blind, placebocontrolled

- Phase 2a study: 120 patients, 12 weeks
- VIVIAD Phase 2b study: 259 patients, avg. treatment duration ~80 weeks
- VIVA-MIND Phase 2 study: 109 patients treated, avg. treatment duration ~46 weeks

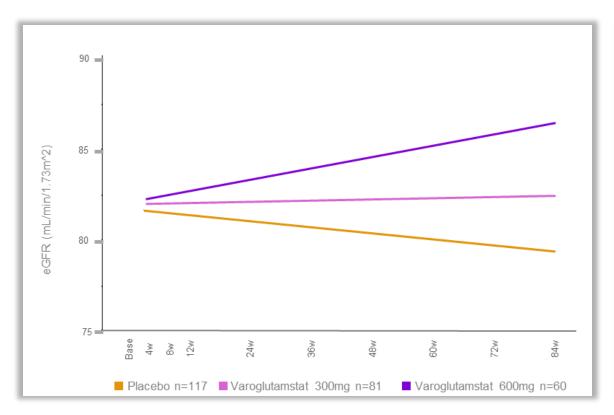
¹ One patient died after a head injury from a fall and the patient had a patient's provision to not resuscitate. A second patient had surgery for gastrointestinal bleeding after stopping study medication and died from complications of the surgery several weeks later. The deaths were considered not / unlikely related to varoglutamstat – the DSMB recommended continuation of study without changes after occurrence of these events during the study.



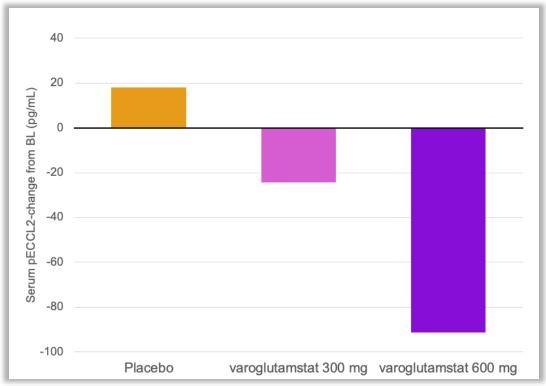
Clear dose-finding results strongly correlated with MoA and biomarker

Reduction of pE-CCL2 in VIVIAD correlates with improvement of eGFR

Varoglutamstat effect on kidney function outcomes (total population; change in eGFR over time (MDRD)¹)



Median reduction in pE-CCL2 levels at week 48 compared to baseline with varoglutamstat (total population)



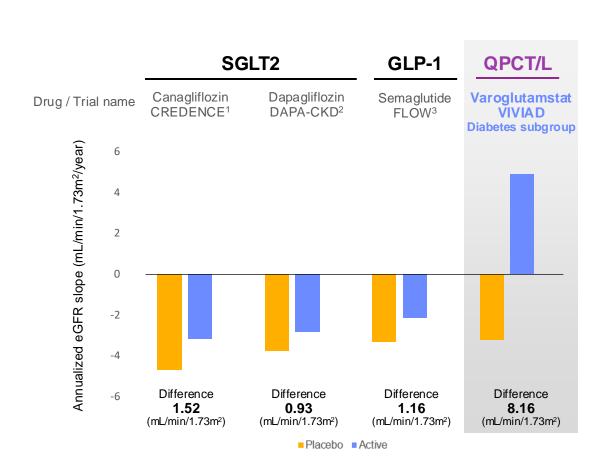


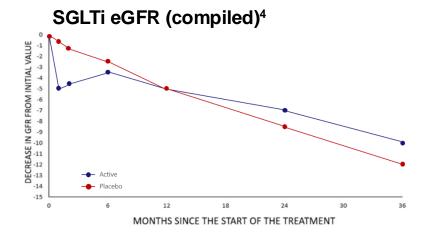
Summary of kidney function data from varoglutamstat Phase 2b program

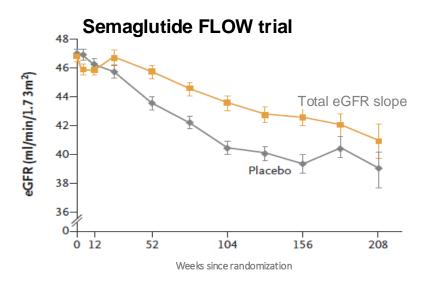
- ✓ Two double blind placebo-controlled studies one conducted in Europe and one in U.S. showed consistent statistically significant and clinically meaningful improvement of eGFR for varoglutamentativersus placebo
- ✓ In both studies eGFR was improved above baseline and stabilized across the whole treatment period of 96 weeks (VIVIAD) and 72 weeks (VIVA-MIND)
- ✓ Meta-analysis shows an approximately two times larger effect size in the diabetes population versus the non-diabetes population
- √ The results provide robust evidence of a treatment benefit
- √ Good safety results in VIVA-MIND with the accelerated dose escalation scheme provide pathway for a
 convenient and commercially viable dosing schedule
- ✓ VIVA-MIND results fully support the sample size planning with 120 or fewer patients and previously communicated target effect size of 5mL/min/1.73m² for visits between week 24 and 72 for the planned Phase 2b study in DKD patients
- ◆ Analysis of VIVA-MIND data will continue



Outstanding commercial potential: Currently available, highly successful medicines only slow disease progression in DKD





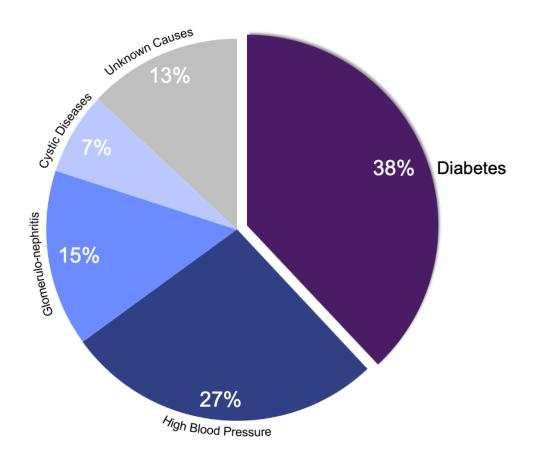




DKD¹ is the leading cause of end stage kidney disease (ESKD)

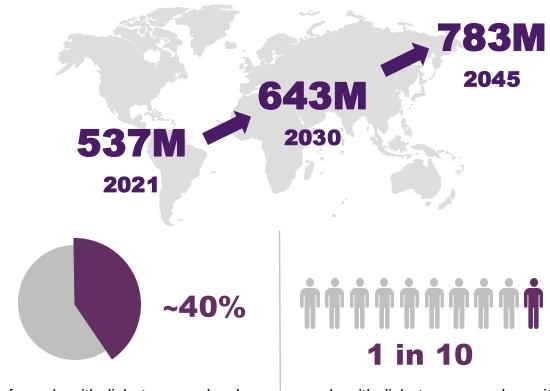
Inflammation and fibrosis are key underlying pathways in DKD

Diabetes is a leading cause of end-stage kidney disease²



Diabetes is a significant and growing global challenge

(adults aged 20-79 years with diabetes, worldwide)³



of people with diabetes may develop diabetic kidney disease (DKD)⁴

people with diabetes may end up with end-stage kidney disease⁴



Planned Phase 2b study in stage 3b/4 DKD on top of standard of care¹

Draft study design, with anticipated interim analysis at 15 months after study start

Enrollment:

- Patients: Diabetes patients with CKD 3b/4 eGFR
- Number of patients: up to 120
- Regions: U.S. and Western Europe

Draft design:

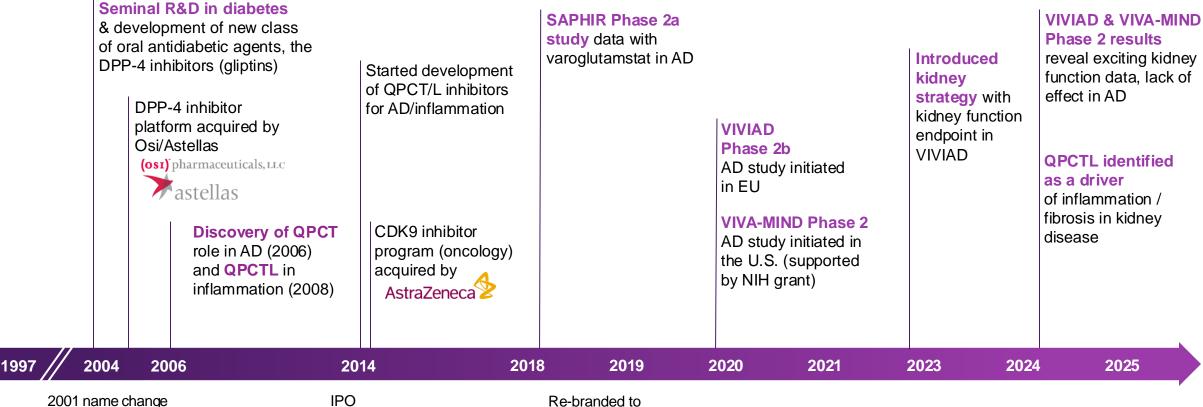
- Double-blind placebo-controlled
- Powered to confirm effect size of at least 3.5mL/min eGFR slope;
 80% power to detect a difference of 5mL/min eGFR slope

Duration/potential costs:

- Interim: until confirmation of effect size, ~15 months (~ 60 patients)
- Full: study completion approx. 2.5 yrs; typical trial cost approx.
 EUR 10 12m²

			Persistent albuminuria categories Description and range		
			Normal to mildly increased	Moderately increased	Severely increased
			<30mg/g <3mg/mmol	30 - 300 mg/g 3-30mg/mmol	>300mg/g >30mg/mmol
			A1	A2	A3
>90	Normal and high	Stage 1	No CKD in absence		
60 - 89	Mild decrease related to normal age range	Stage 2	of markers of kidney damage		
45 - 59	Mild - moderate reduction	Stage 3a			(√)
30 - 44	Moderate - severe reduction	Stage 3b		√	√
15 - 29	Severe reduction	Stage 4		√	√
< 15	Kidney failure	Stage 5			
				Worsen	ing

Vivoryon: A history of groundbreaking discoveries and developments



Company founded as ProBioTec EURONEXT

Amsterdam

Re-branded to Vivoryon

Funding:

private placements of ~EUR 51m; USD 15m NIH grant for U.S. clinical development Funding:

EUR 61m (plus EUR 15m option) raised in private placements



to problodrug

AD: Alzheimer's disease 19

A trusted company: Senior management team with a strong track record

Executive Directors



Frank Weber, MD
Chief Executive Officer





Anne Doering, CFA
Chief Financial Officer









Michael Schaeffer, PhD
Chief Business Officer





Non-executive Directors

Erich Platzer, MD, PhD
Chairman of the Board

Charlotte Lohmann

Claudia Riedl, PhD
Chair Audit Committee

Samir Shah, MD

Decades of collective experience in biopharma industry, e.g.:

First approved drug in pulmonary fibrosis

Successful development of biomarker driven oncology & diabetes programs

M&A and business development **expertise** from transactions with large biopharma

Know-how in life science research & development, biophysical and structure-based drug discovery

Strong financial, capital markets and legal **experience**



Looking ahead: Upcoming value drivers







Ph. 2b DKD study interim data (~15 months post P2 initiation)

Ph. 2b DKD study full data (~15 months post P2 interim)

Pipeline focused on kidney disorders and inflammatory/fibrotic diseases

	Program	Approach	Discovery	Preclinical	Phase 1	Phase 2	Phase 3	Status
Inflammatory/fibrosis incl. kidney	DKD (Varoglutamstat/PQ912)	SMI QPCT/L	POC in VIVI	AD & VIVA-MIN	ID results			Preparing for Phase 2b DKD study
	Kidney orphan diseases (Varoglutamstat/PQ912)	SMI QPCT/L			Pre-IND			Pre-clinical orphan disease models
	Kidney disorders, fibrotic/inflammatory (VY2149)	SMI QPCT/L			Pre-IND			
	Fibrotic indications (NCE)	SMI Meprin			Research program	n		
Alzheimer's disease	Varoglutamstat (PQ912)	SMI QPCT/L	Phase 2 (high dose) under evaluation			AD program: under evaluation after negative topline data March 2024 (VIVIAD) & December 2024 (VIVA-MIND)		
	Varoglutamstat (SIM0408, PQ912)	SMI QPCT/L	CTA approva	al in China				Partnered with Simcere in Greater China
	PBD-C06	mAb N3pE amyloid			Pre-IND			Partnered with Simcere in Greater China



Vivoryon: Phase 2 program confirms varoglutamstat as a leading compound for further development in kidney disorders including DKD

Groundbreaking discovery

Inhibition of QPCTL reduces kidney inflammation and fibrosis

Breakthrough clinical results Varoglutamstat – first in class QPCT/L inhibitor – shows a large and statistically significant improvement of eGFR versus placebo in two independent Phase 2 studies

Outstanding commercial potential Substantial market opportunity in DKD with potential to prolong time before kidney replacement therapy – further potential in other kidney and liver indications

Actionable clinical plan

Completion of Phase 2 DKD program requires only one additional study

Trusted organization

Management with track record in fibrosis and business development

