

Why do some people with diabetes experience complications, while others with similar HbA1c levels do not?

This question has been the driving force behind NaviDKD and the decades of extensive research focused on identifying individuals most susceptible to diabetes-related kidney disease (DKD). Our findings have revealed the pivotal role of Advanced Glycation End Products (AGEs) in predicting the onset of kidney disease. Rigorous validation has established AGEs as reliable predictive indicators of kidney disease.

What are AGEs?

Advanced Glycation End Products (AGEs) are the result of a non-enzymatic reaction between sugar and proteins, lipids, or nucleic acids. There are two types of AGEs: endogenous, which occur within the body, and exogenous, present in foods. Elevated levels of AGEs have been closely linked to the natural aging process and the progression of diseases, such as DKD.¹ The kidneys play a crucial role in removing AGEs and may be particularly vulnerable to their impact. Persistent high glucose levels and the consumption of AGE-rich foods contribute to the accumulation of AGEs. Elevated levels of specific AGEs serve as indicators of an increased risk of health complications, including DKD.

Establishing AGEs as a Biomarker for DKD

Dr. Paul Beisswenger, MD, co-founder and Chief Scientific Officer of Journey Biosciences, along with his dedicated research team, devoted years to investigating the role of AGEs in individuals with diabetes. Longitudinal clinical outcome trials, such as the DCCT/EDIC and ACCORD/VADT, utilized blood samples and clinical data to identify the specific AGEs associated with DKD development. Since the population of patients who developed kidney disease was identified in these studies, the analysis of AGEs in these samples confirmed the significance of AGEs in individuals with DKD.

As a result of this research, NaviDKD was developed as a predictive screening tool, generating insights consolidated into a comprehensive Compass Report™. The report not only clearly identifies an individual's risk of kidney disease but also provides current clinical guidance to assist providers in creating a personalized care plan, aiming to delay or prevent disease progression.

FOUNDER SPOTLIGHT: DR. PAUL BEISSWENGER, MD



Throughout his distinguished career as a medical practitioner, educator, and researcher, Dr. Beisswenger has pursued this fundamental question:

“Why do certain individuals with diabetes exhibit a higher susceptibility to complications?”

Recognizing that glycemic control alone did not provide a complete answer, Dr. Beisswenger delved into the field of Advanced Oxidative and Glycation Endproducts (AGEs), exploring the presence of biomarkers in the blood that offer insights into the likelihood of developing diabetes complications.

Driven by his unwavering commitment to diabetes research, Dr. Beisswenger's work has paved the way for the development of NaviDKD and the establishment of Journey Biosciences, where he currently serves as Chief Scientific Officer.

NaviDKD Clinical Validation

The following table outlines the studies that have established and validated the association between AGEs and the development of kidney disease in diabetes patients. For detailed insights and access to the full peer-reviewed publications, visit journeybio.life/studies.

STUDY	RESULTS	RELEVANCE
Natural History of Diabetic Nephropathy	Highlighted early incidence of CKD in individuals with T1DM within five years of diagnosis, as confirmed through biopsy. Demonstrated statistical significance of three specific AGEs in fast progressors of DKD: CML (p=0.003), CEL (p=0.026), and MGH1 (p=0.04)	The causal relationship between AGEs and CKD was validated independently of HbA1c levels, leading to the development of a preliminary risk score algorithm.
Pima Indian Nephropathy	Demonstrated the relationship between AGEs and the initiation and progression of DKD in individuals with T2DM. Losartan treatment did not have an impact on AGE levels.	Validated the integration of traditional and AGE biomarkers in predicting the risk of kidney damage related to diabetes in individuals with T2DM.
DCCT / EDIC	Demonstrated predictive and independent associations between specific AGEs (CML, 3DG-H, and CEL) and the decline of renal function as well as the progression of DKD.	Confirmed predictive relationship between AGEs and DKD progression in individuals with T1DM. Highlighted early identification of high-risk individuals through specific AGE measurement, offering predictive power beyond traditional risk factors and enabling preventive therapies.
ACCORD / VADT	Demonstrated AGEs' independent association with kidney function decline in T2DM and showed limited benefits of intensive glycemic control. Indicated prominent role of factors such as eGFR decline, age, ethnicity, CVD history, and blood pressure in kidney function deterioration.	Validated the importance of measuring specific AGEs for DKD risk assessment. Confirmed risk algorithm needs to consider not only AGEs but also other crucial factors to provide accurate risk assessment and management strategies for DKD.

About Journey Biosciences

Journey Biosciences is dedicated to creating technologies that predict and overcome preventable diseases. Through the discovery of blood-based predictive biomarkers and the development of clinically validated, laboratory developed tests (LDTs), we aim to provide early risk assessment and proactive management options, ultimately improving health outcomes for millions of people. Discover more about our innovative approach and how we are making a difference at journeybio.life.

LEARN MORE

Scan the QR code or visit journeybio.life/studies to delve deeper into the comprehensive research behind NaviDKD.

