AOMM™ SCIENCE · WHITE PAPER 01

Also in this series: White paper 02 — Platform (coming soon)

Computing oral minimal model indices is no longer a bottleneck.

Simone Perazzolo · August 2026
Director, Nanomath LLC · Seattle, WA

Fast, reliable, and validated. Automated Oral Minimal Model (AOMM™) program.

AOMM™ is a program that runs on your laptop and keeps your data there. It has been validated on historical and new data, across small and large cohorts — T1D, T2D, IGT, normoglycemia, and more. It recovers insulin sensitivity and β-cell responsivity (and the disposition index) from OGTT and MMTT tests in batch. The indices were previously validated against clamps/tracers for Si and insulin secretion. Based on the SAAM II architecture.

Why is AOMM™ important?

Minimal model indices are among the most physiologically grounded approaches for assessing insulin sensitivity and β-cell function, but they remain difficult to compute reliably. In practice, the analysis often requires:

- A data scientist or modeling expert to perform the analysis
- An experienced modeler to review, troubleshoot, and validate the results
- Specialized software such as SAAM II, or a custom implementation that may not be standardized or independently validated

As a result:

- Results may vary across implementations, limiting reproducibility and confidence in multicenter studies and clinical trials
- The analysis may be too time- and resource-intensive for routine use, leading teams to rely on simpler indices that can lose physiologically meaningful information

What do you need?

Take your spreadsheet test results and input them into AOMM™.

© Nanomath LLC

- **OGTT / MMTT.** Glucose amount in grams or g/kg (e.g., 75 g).
- **Timeline.** Accepts all test timepoints — 5, 7, … n points in the −30 to 420 min range. Custom timelines are accepted.
- **Analytes.** Glucose, insulin, and C-peptide for the full model run.
- **Demographics.** Test ID, body weight (BW), BMI, and age at visit.

How does it perform at scale?

AOMM™ performs well at scale: about one test per second, up to ~10k tests in a run. In a TrialNet cohort of 10k+ OGTTs, success rates were >98% for extracting insulin sensitivity and β-cell secretion indices.

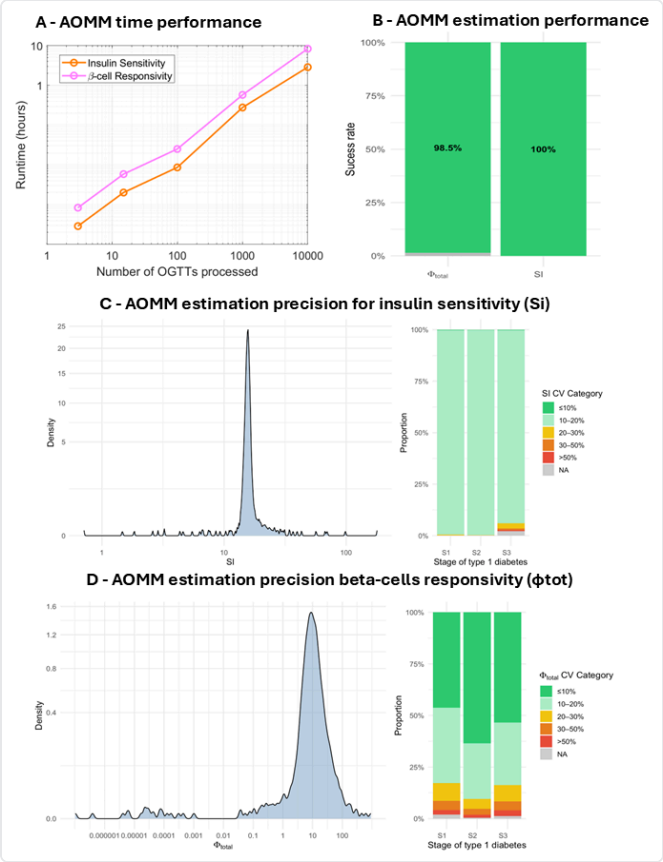


Figure. AOMM™ time and estimation performance — runtime vs number of OGTTs, success rates for Si and Φ_{total}, and precision (CV) by stage. From ATTD Barcelona, 11–14 March 2026.

Architecture

AOMM™ takes clinical OGTT/MMTT data from a spreadsheet, runs quality-controlled batch preparation, executes the validated SAAM II oral minimal-model engine, and returns physiological estimates — insulin sensitivity (S_I), β-cell responsivity (Φ), and the disposition index (DI).

© Nanomath LLC

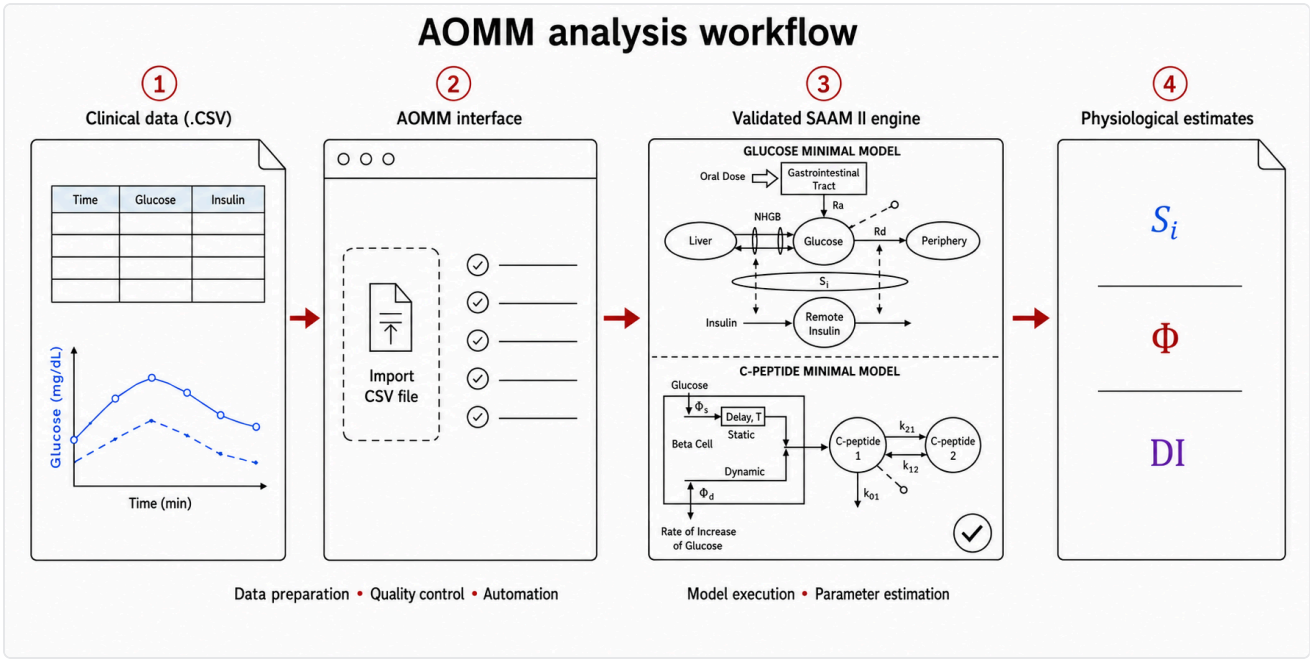


Figure. AOMM™ analysis workflow — from clinical data to physiological estimates on the SAAM II engine.

Acknowledgements

Breakthrough T1D, TrialNet, C-Path, A Carr and P Senior (U Alberta), A Galderisi (Yale), C Cobelli (Padova), C Dayan (Cardiff).

© Nanomath LLC