

# ACTION PROFILES OF GLARGINE 300U/ml AND GLARGINE 100U/ml IN TYPE 2 DIABETES: AN EA1C COMPARISON OF THE FASTING AND PRANDIAL COMPONENTS OF AVERAGE GLYCEMIC CONTROL

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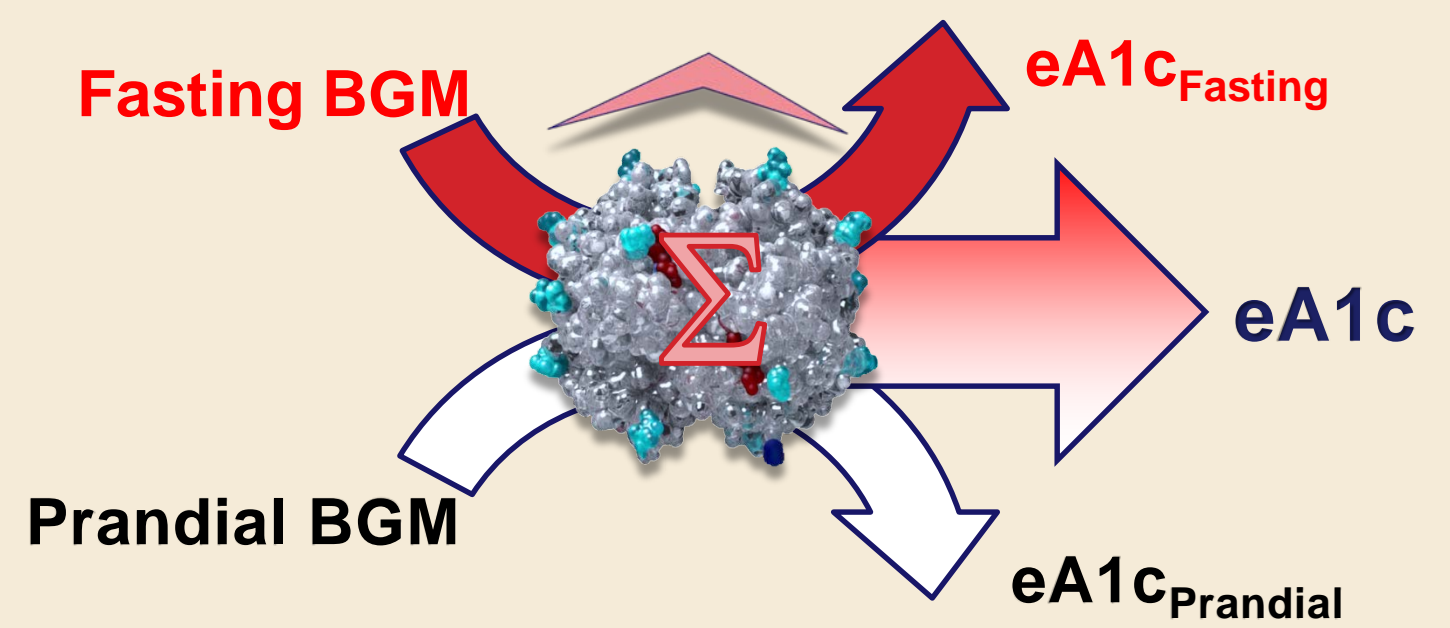
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## Introduction

Insulin glargine 300U/mL (Gla-300) is a long-acting insulin analog indicated for adults with diabetes mellitus. Pivotal clinical trials compared Gla-300 vs. insulin glargine 100U/mL (Gla-100), showing that Gla-300 and Gla-100 achieve similar HbA1c outcomes with a more stable and prolonged PK and PD profiles and hypoglycemic benefits. As HbA1c represents a surrogate measure for average glycemia through hemoglobin glycation, it may deviate substantially from average glucose levels; estimated A1c (eA1c) also indirectly measures average glycemia using a dynamical model with self-monitored blood glucose (SMBG) as input. We propose to study differences in average glycemia between Gla-300 and Gla-100 using eA1c, calibrated with both reference HbA1c and SMBG day profiles<sup>1</sup>.

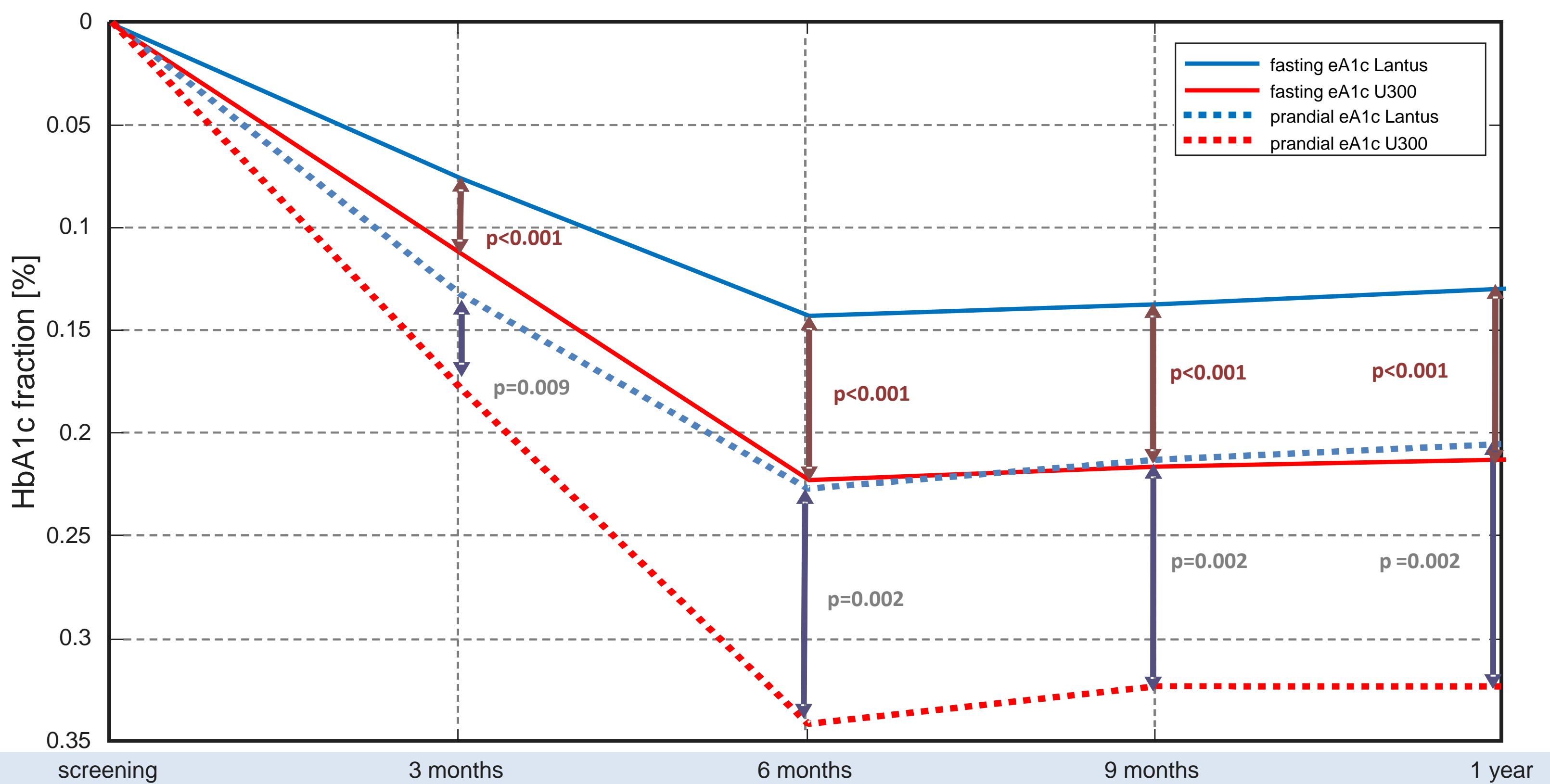
## Materials and Methods

SMBG data from the EDITION-2 study (NCT01499095) - a multicenter, open-label, clinical trial, which randomized N=811 participants to Gla-300 or Gla-100 once daily for 12 months (6 months + extension) were analyzed. N=440 subjects with enough SMBG data for eA1c assessments at 0, 3, 6 and 12 months (completers) were selected, and the fasting and prandial components of eA1c were computed separately, distinguishing between contributions of fasting and postprandial SMBG values to overall eA1c estimates.



## Results

Accounting for baseline differences, Gla-300 lowered fasting BG more than Gla-100, by -30mg/dl vs. -21.3mg/dl,  $p < 0.001$ . As seen in Figure 1, the improvements of both the fasting and the prandial components of eA1c were more pronounced on Gla-300 than on Gla-100.



## Conclusions

In conclusion, while the EDITION 2 study has demonstrated that Gla-300 was similarly effective to Gla-100 in terms of HbA1c lowering, Gla-300 achieved better overall eA1c control than Gla-100 in completers, and for both fasting and prandial components.

## Acknowledgments

This work was funded by Sanofi. ZM, BL, and AC are employees of Sanofi. MDB and BPK have received consulting fees, honorarium and research funding from Sanofi. MDB and BPK are authors of patents and copyrights on the matter subject.

## References

- Kovatchev BP, Flacke F, Sieber J, Breton MD. Accuracy and Robustness of Dynamical Tracking of Average Glycemia (A1c) to Provide Real-Time Estimation of Hemoglobin A1c Using Routine Self-Monitored Blood Glucose Data. *Diabetes Technol Ther*, 2014, 16: 303-309
- Yki-Järvinen H, Bergenstal RM, Bolli GB, Ziemien M, Wardecki M, Muehlen-Bartmer I, Maroccia M, Riddle MC. Glycaemic control and hypoglycaemia with new insulin glargine 300 U/ml versus insulin glargine 100 U/ml in people with type 2 diabetes using basal insulin and oral antihyperglycaemic drugs: the EDITION 2 randomized 12-month trial including 6-month extension. *Diabetes, Obesity and Metabolism*. 2015 Dec 1;17(12):1142-9.