Supplementary Information 2

Title: Lung Physiologically Based Pharmacokinetic Modelling to Predict Sublingual Buprenorphine Kinetics Following Oral Inhalation.

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Inhaled Buprenorphine Concentration Time Profiles

Figure 1. Plasma concentration time profiles for inhaled buprenorphine overlayed with observed data across reported dose ranges.
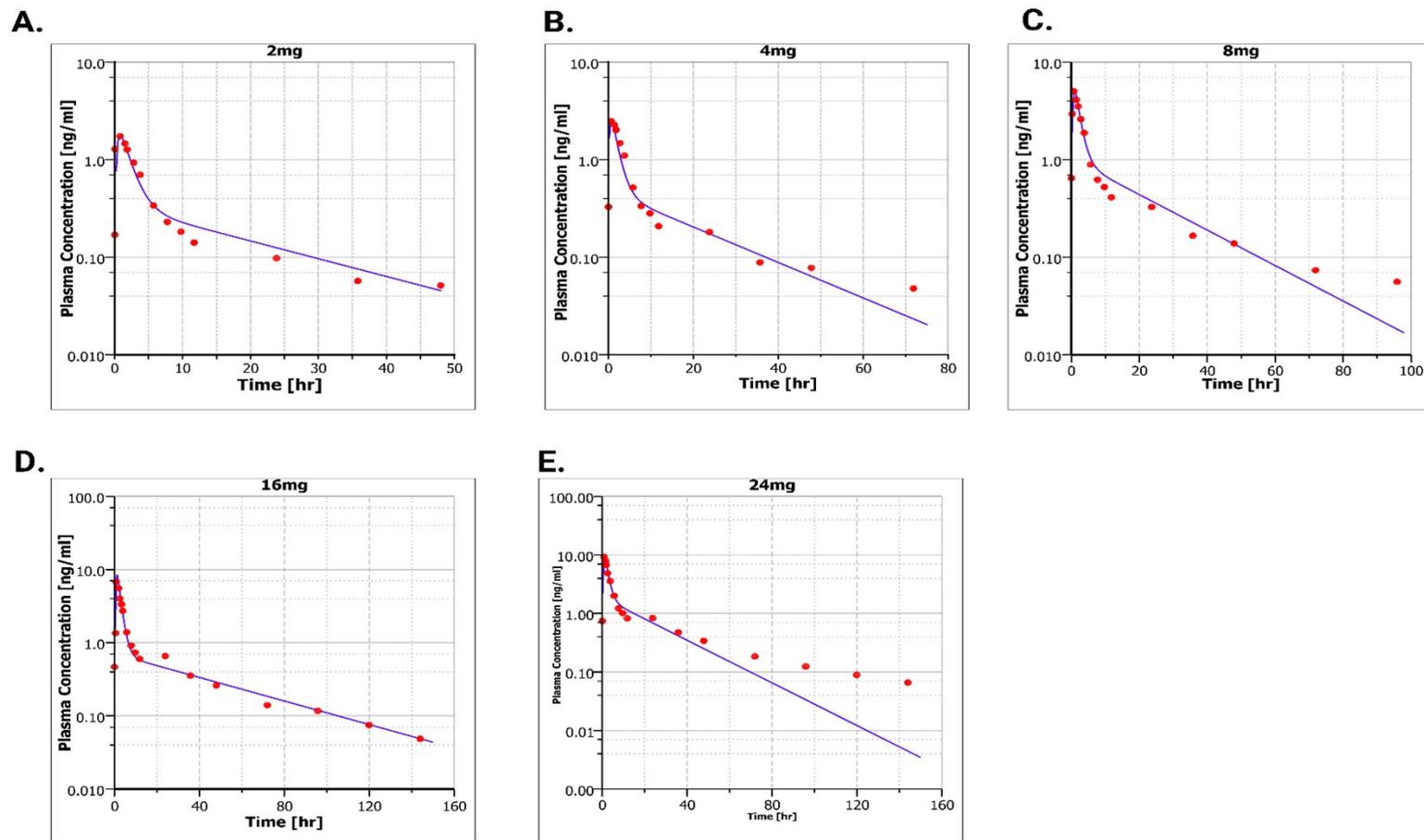
Purple lines depict predicted concentrations; dense red circles depict observed sublingual profiles from clinical studies.

Figure 2. Comparison Plots between dose and P/O ratio for the orally inhaled buprenorphine physiologically-based pharmacokinetic model, depicting dose dose versus the ratio between predicted and observed (P/O ratio).

a. Area Under the Curve   **b. C_{max}**   **c. T_{max}**
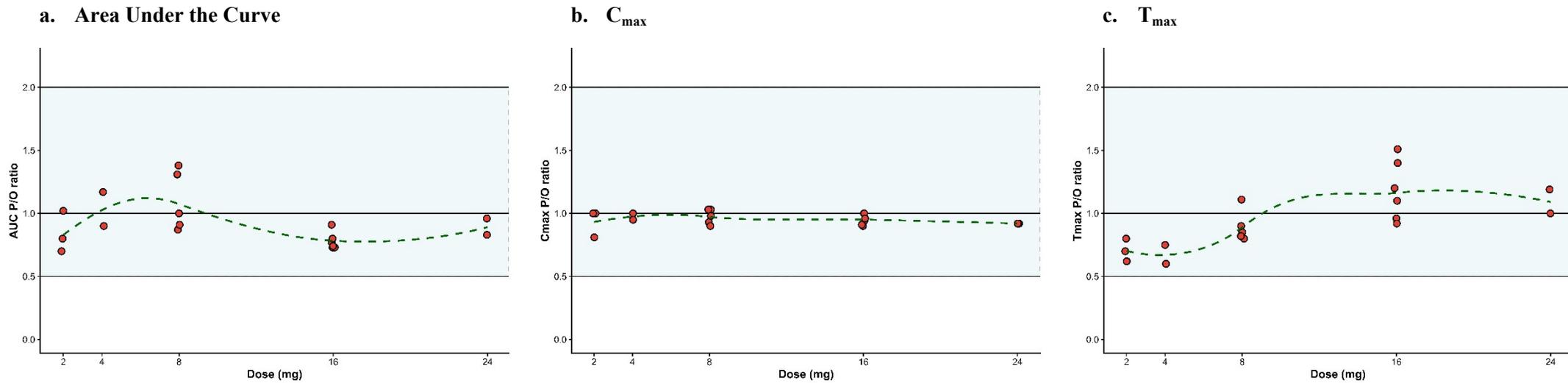
The solid black line denotes the equality line, and the grey dashed lines in the light blue region denote the two-fold range (0.5 - 2.0). Vermilion coloured circles with outer black borders depicts the predicted to observed metrics of the pharmacokinetic parameters. . The green long-dashed line depicts the locally estimated scatter plot smoothing line (LOESS).