

## Online-Only Appendix

### Use of the Site of Subcutaneous Insulin Administration for the Measurement of Glucose in Patients with Type 1 Diabetes

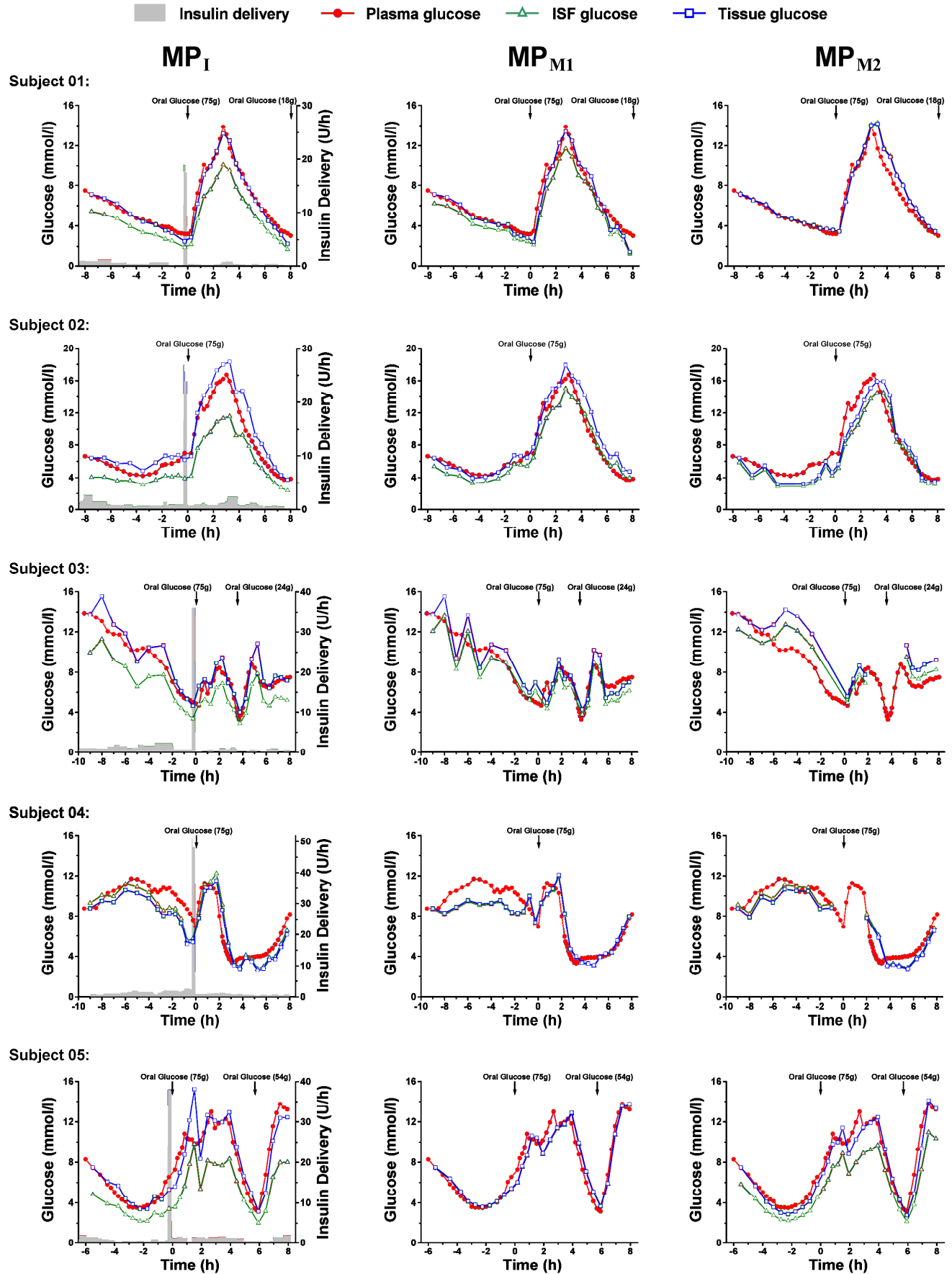
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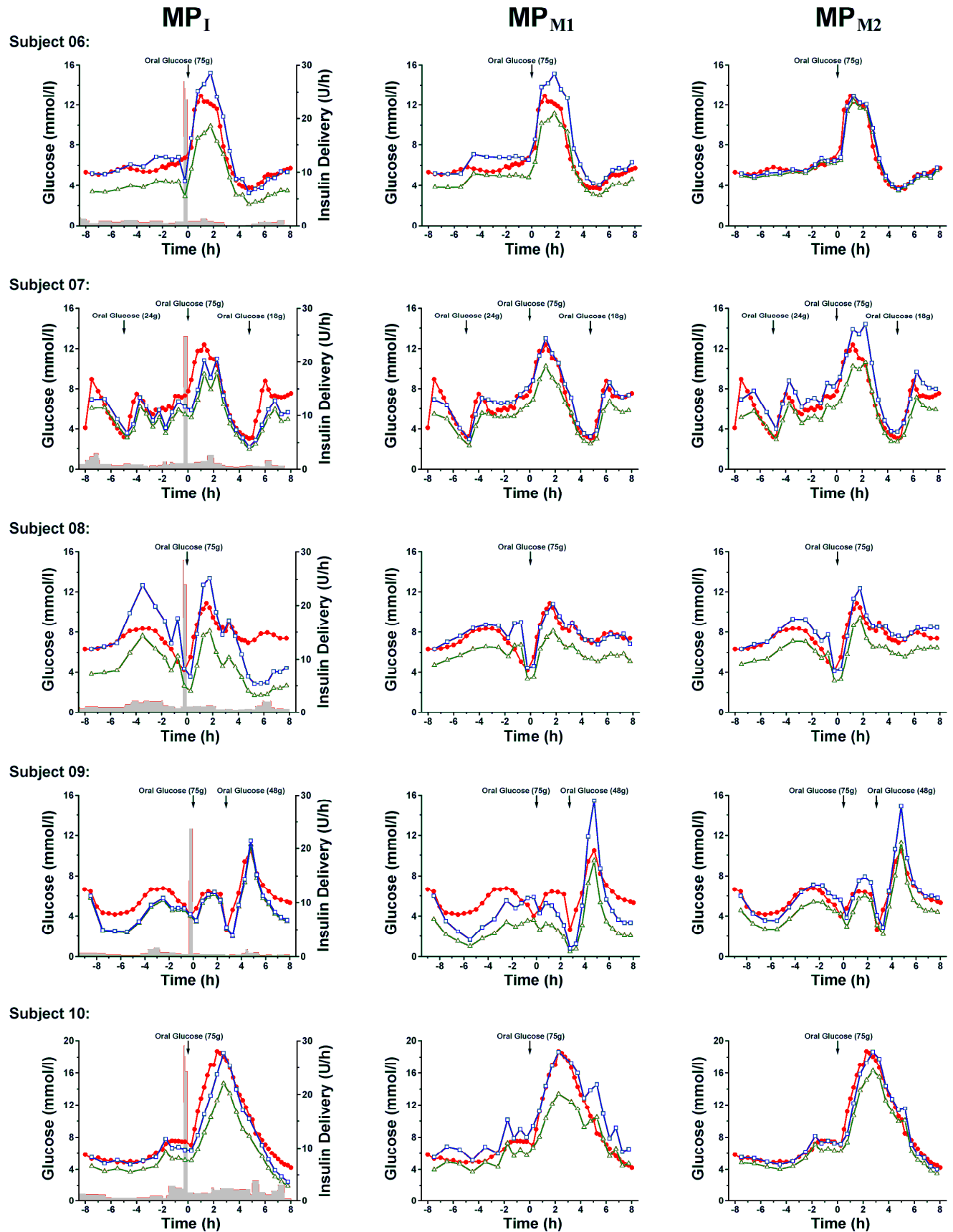
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**Online Appendix Figure 1** Comparison of plasma and ISF-derived glucose concentrations observed during an overnight fast and subsequent OGTT in 10 diabetic subjects. Left panels show the time courses of the plasma glucose (circles) and the ISF glucose levels (upper triangles) obtained with the MP catheters used for glucose sampling and simultaneous insulin delivery (MP<sub>I</sub>). Also shown are the time courses of the calibrated ISF-glucose concentration (termed tissue glucose concentration; squares) and the insulin delivery rate (grey solid bars) applied to control glucose concentration during experiments. Middle and right panels show the time courses of the plasma glucose as well as the ISF and tissue glucose levels obtained with the mannitol-perfused catheters MP<sub>M1</sub> and MP<sub>M2</sub>. In the panels for subject 1, 4, 5 and 9, some ISF glucose time courses are very similar to the tissue glucose time courses, and therefore they are not easily distinguishable from each other. Small delays between changes in the plasma versus interstitial glucose concentrations were observed in some (e.g., subjects 2, 4 and 6) but not all subjects during the OGTT. The frequency and extent of these delays, however, were similar for the insulin-perfused and mannitol perfused catheters.

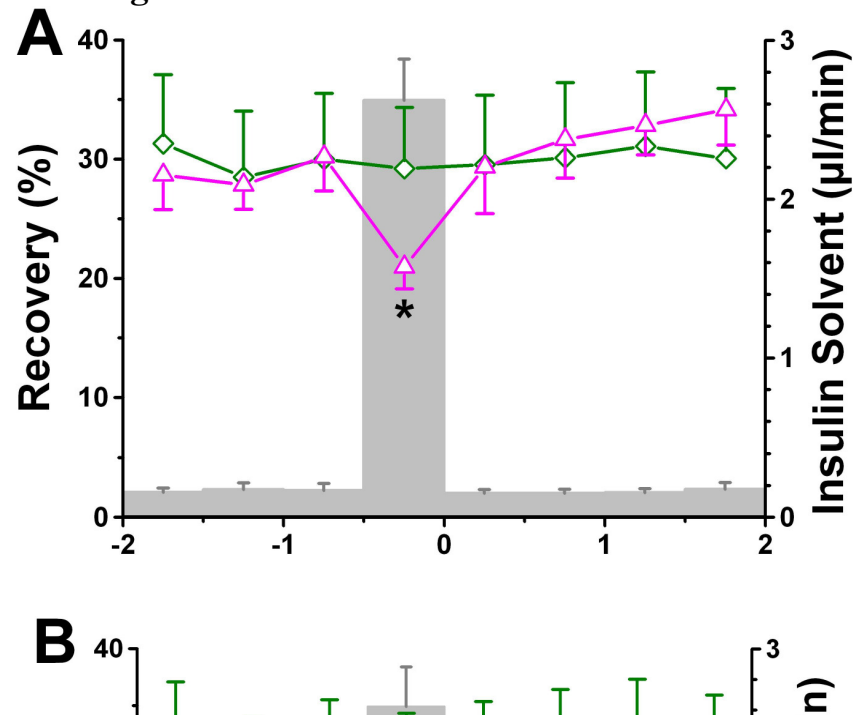


Insulin delivery    Plasma glucose    ISF glucose    Tissue glucose





Online Appendix Figure 2:



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