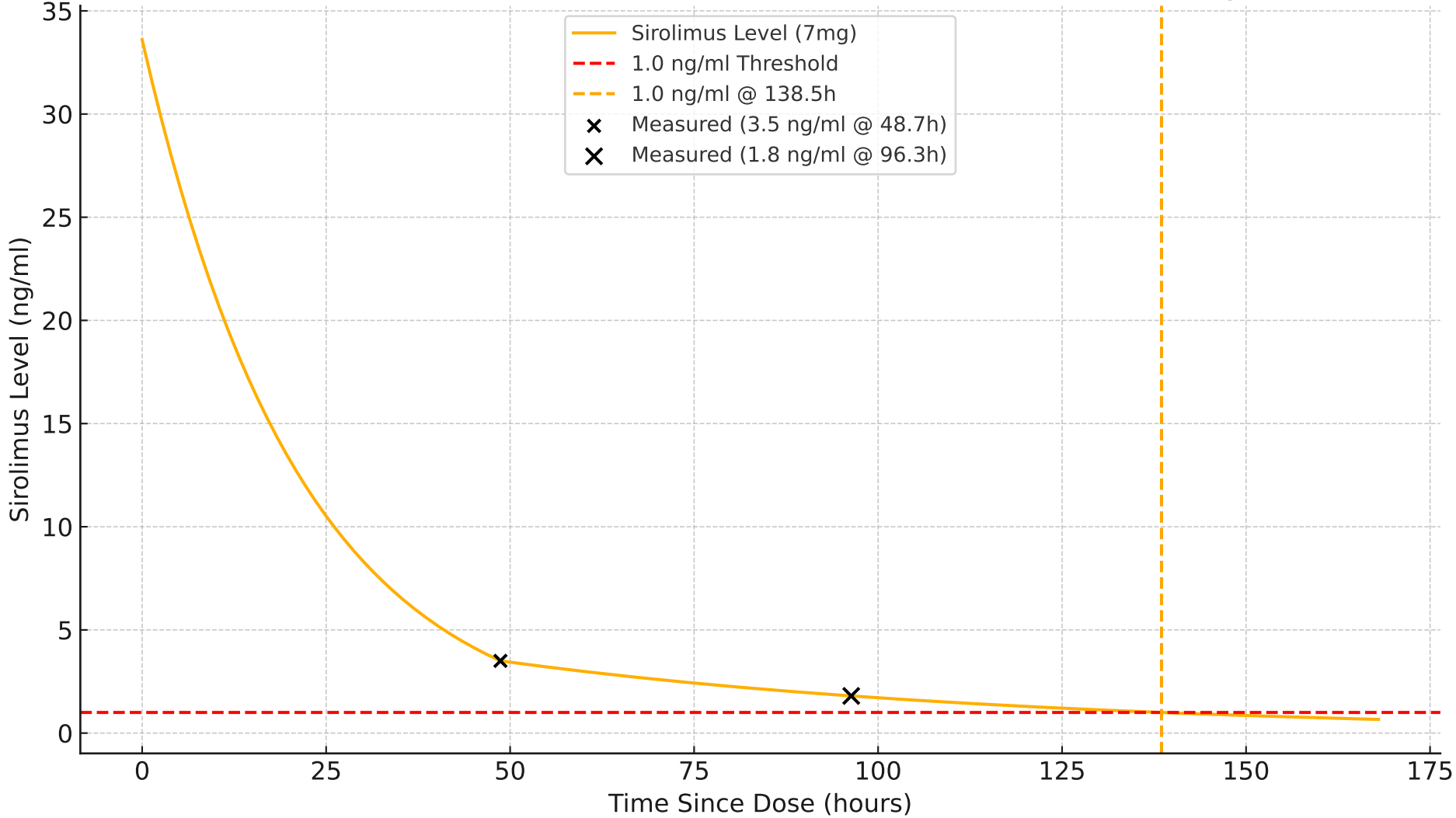


Final Two-Phase Sirolimus Blood Level Curve (Cmax = 33.6 ng/ml)



FINAL SIROLIMUS PHARMACOKINETIC MODEL (7 MG WEEKLY)

INPUT PARAMETERS

- Dose time: Sunday 10:13 AM
- Draw 1: Tuesday 10:54 AM → 48.683 hours after dose
- Draw 2: Thursday 10:34 AM → 96.35 hours after dose
- Measured levels: 3.5 ng/ml (48.7h), 1.8 ng/ml (96.3h)
- Cmax estimate (from 10 mg dose): 48 ng/ml
- Scaled Cmax (7 mg dose): 33.6 ng/ml

PHARMACOKINETIC CALCULATIONS

- Terminal elimination rate constant:
 $k = -\ln(1.8 / 3.5) / (96.35 - 48.683) = 0.01395 \text{ h}^{-1}$
- Terminal elimination half-life:
 $t_{1/2} = \ln(2) / k = \ln(2) / 0.01395 = 49.7 \text{ hours}$
- Distribution half-life:
 $k_{\text{dist}} = \ln(33.6 / 3.5) / 48.683 = 0.04814 \text{ h}^{-1}$
 $t_{1/2_{\text{dist}}} = \ln(2) / k_{\text{dist}} = 14.4 \text{ hours}$

MODEL STRUCTURE

- Distribution Phase: 0–48.7 h, Cmax 33.6 → 3.5 ng/ml
- Elimination Phase: 48.7–168 h, 3.5 → <1 ng/ml

RESULT

- Time when sirolimus drops below 1.0 ng/ml:
→ 138.5 hours post-dose (Friday ~12:43 AM)