□ Plasma_Albumin(t) = Plasma_Albumin(t – dt) + Albumin_Supply + Albumin_Return – Catabolic_Degradation – Albumin_Crossing_GBM) * dt

   INIT Plasma_Albumin = 1

   INFLOWS:

   → Albumin_Supply = LiverSynthesis

   → Albumin_Return = Tubular_Albumin*Fractional_Albumin_Return

   OUTFLOWS:

   → Catabolic_Degradation = Plasma_Albumin*CatabolicRate

   → Albumin_Crossing_GBM = Plasma_Albumin*(D_Alb_in_GBM/Thickness_of_GBM)

□ ProxTub_Fluid_(t) = ProxTub_Fluid_(t - dt) + (GFR - Water_Reabsorption_&_Excretion) * dt

   INIT ProxTubFluid_= 1

   INFLOWS:

   → GFR = SD_Length*Transglomerular_Pressure*4

   OUTFLOWS:

   → Water_Reabsorption_&_Excretion = ProxTub_Fluid_*1

□ Tubular_Albumin(t) = Tubular_Albumin(t - dt) + (Albumin_Crossing_GBM – Albumin_Return - Albumin_Excretion - Albumin_Degradation) * dt

   INIT Tubular_Albumin = 1

   INFLOWS:

   → Albumin_Crossing_GBM = Plasma_Albumin*(D_Alb_in_GBM/Thickness_of_GBM)

   OUTFLOWS:

   → Albumin_Return = Tubular_Albumin *Fractional_Albumin_Return

   → Albumin_Excretion = Tubular_Albumin - Albumin_Return-Albumin_Degradation

   → Albumin_Degradation = (Tubular_Albumin - Albumin_Return)* Fractional_Albumin_Degradation

○ Albumin_Concentration_ProxTub = Tubular_Albumin/ProxTub_Fluid_

○ CatabolicRate = 0.9   ○ D_Alb_in_GBM = 5   ○ Liver_Synthesis = 1

○ SD_Length = 1   ○ Thickness_of_GBM = 1   ○ Transglomerular_Pressure = 1

Fractional_Albumin_Return = GRAPH(Albumin_Concentration_ProxTub)

   (0.00, 1.00), (2.00, 1.00), (4.00, 0.7), (6.00, 0.4), (8.00, 0.1), (10.00, 0.1), (12.00, 0.1), (14.00, 0.1), (16.00, 0.1), (18.00, 0.1) (20.00, 0.1)

Fractional_Albumin_Degradation_ = GRAPH(Albumin_Concentration_ProxTub)

   (0.00, 1.00), (2.70, 1.00), (5.40, 0.7), (8.10, 0.4), (10.8, 0.1), (13.5, 0.1), (16.2, 0.1), (18.9, 0.1), (21.6, 0.1), (24.3, 0.1) (27.00, 0.1)