**TABLE 1 Model Parameters**

Physical parameters used in oxygen transport model.

|  |  |  |
| --- | --- | --- |
| Blood plasma velocity | () | 1275[19] |
| Red Blood Cell velocity |  | 1147.5 [19] |
| Slip coefficient | Slp | 0.1 [17] |
| Discharge Hematocrit |  | 0.4 [18,20] |
| Tube Hematocrit |  | 0.28 [18,20] |
| Diffusivity in plasma | () | 2750[5],[6] |
| Diffusivity in Permeable Membrane | () | 160000[6] |
| Plasma Layer Thickness | T() | 1[6] |
| Permeable Membrane | (mmHg) | 10[6] |
| Axial position for start of  Permeable Membrane along channel/arteriole | () | 7000 [6] |
| Axial position for end of  Permeable Membrane along channel/arteriole | () | 7700[6] |
| Inlet | (mmHg) | 150 [6] |
|  |  |  |
| Microfluidic Device/Arteriole length | L () | 14700 |
| Porous Membrane Thickness | () | 100 [6] |
| Hill Coefficient | N | 2.7[5] |
| Solubility in Porous Membrane | () | 17.959[6] |
| Solubility in Plasma | () | 1.33[5],[6] |
| Solubility in RBCs | () | 1.47 [5],[6] |
| Reaction Rate |  | 0.1 [6] |
| Total Heme Concentration | () | 5350 [5],[6] |
| ATP Diffusivity in plasma | () | 475 [6] |
| Partial Pressure at 50% Saturation | (mmHg) | 27 [5],[6] |