

TABLE 2 Summary of cellular parameters of individual cell types in the bone marrow hematopoietic compartment. Note symbols are shown after the parameter value(s)

	Granulocytes	Monocytes	Lymphocytes	Erythrocytes	Megakaryocytes	Adipocytes
Fraction of cells (without adipocytes) (as %)	16.9–100*	0–4.3*	2.5–25*	3.46–37.6*	0–3* [†]	0 [‡]
Cell diameter (μm)	10–25 [§]	12–50 [§]	9–20 [¶]	6.7–8 [§]	30–160 [§]	50–300
Average cell diameter (μm)	17.5	31.0	14.5	7.35	95.0	175.0
Specific cell volume $\times 10^9$ (cm^3/cell)	2.8	15.6	1.6	0.208	448.9	2806
Specific oxygen uptake rate $\times 10^{14}$ (mol/cell/h)	2.2–64.9**	2.2–64.9 ^{††}	0.07–5.0 ^{‡‡}	0.162–0.649 ^{§§}	144 ^{¶¶}	32.4
Volumetric oxygen consumption rate $\times 10^9$ (mol/ cm^3/s)	2.2–64.4	0.4–11.6	0.1–7.1	2.2–8.7	0.89	0.03
Effective oxygen permeability $\times 10^{14}$ (mol/cm/s/mm Hg)	3.20***	3.20***	2.99***	1.58 ^{†††}	3.54***	9.11***
Effective oxygen diffusion coefficient $\times 10^5$ (cm^2/s)	1.58***	1.58***	1.63***	0.90 ^{†††}	1.52***	1.57***

*Custer, 1974; McDonald et al., 1988; Platt, 1979.

[†]Wickramasinghe, 1975.

[‡]Fraction of cells is estimated based on hematopoietic marrow only.

[§]Heilmeyer and Begemann, 1989; McDonald et al., 1988; Wickramasinghe, 1975.

[¶]Custer, 1974; Heilmeyer and Begemann, 1989; McDonald et al., 1988.

^{||}Marshall and Lichtman, 1981.

**Calculated from Bird et al., 1951, and Collins et al., 1998.

^{††}Monocytes are assumed to have oxygen metabolism similar to granulocytes.

^{‡‡}Guzman Barron and Harrop, 1929.

^{§§}Calculated from Bishop and Surgenor, 1964.

^{¶¶}Calculated from Grunewald and Sowa, 1977, and Wintrobe, 1961.

^{|||}Botcher et al., 1995.

***Values are estimated using Riley's correlation (Riley et al., 1996) and methods suggested by Dutta and Popel (1995).

^{†††}Experimental data and literature values (Bishop and Surgenor, 1964; Goldstick et al., 1975) instead of the calculated values are used for further calculations due to the presence of hemoglobin, which was not accounted for in our estimation.