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BOOK REVIEW

CELL SEPARATION METHODS

H. Bloemendal, Ed.

North Holland Publ. Co., Amsterdam, New York,
1977; hardbound, 177 pages; \$29.95.

These are the Proceedings of a workshop on Methods in Cancer Research, held in Lunteren, the Netherlands, in November of 1976. This reviewer much regretted having been unable, at the last moment, to participate in this workshop and therefore now doubly appreciates the privilege of reviewing its Proceedings. The 12 contributions are divided into four parts: I, Sedimentation Methods; II, Cell Sizing; III, Cell Partition; and IV, Electrophoretic Methods. They treat: I, The separation and isolation of cells by sedimentation velocity at unit gravity, by W.S. Bont and J.E. de Vries; The versatility of the unit gravity sedimentation method, by A. Tulp, J.J.M. N. Welagen and P. Emmelot; Isolation of immature myeloid cells from normal human bone marrow and partial separation of G₁ and S-phase cells in patients with acute myeloid leukemia, by J. Burghouts, A.M. Plas, J. Wessels, H. Hillen, J. Steenbergen and C. Haanen; Physical characterization of haemopoietic progenitor cells by equilibrium density centrifugations, by S.J.L. Bol, J. Visser, N. Williams and G. van den Engh; II, The use of electronic cell sizing for the monitoring of blood cell separations, by H. Loos; Laser backscattering measurements on biological cell; preliminary results, by G.C. Salzman, B.J. Price, R.D. Hiebert, F. Mullaney and J.W.M. Visser; III, Phase partition - a method for separating cells according to cell surface properties, by P.A. Albertsson; IV, Continuous-

free-flow electrophoresis and its application in biology, by K. Hannig and H.G. Heidrich; Analysis and purification of cells with the free zone electrophoresis equipment, by S. Hjertén; Further studies on continuous-flow electrophoresis of red blood cells and of the light mitochondrial fraction of rat liver using pH gradients, by W.W. Just and G. Werner; Initial studies on the separation of cells by density gradient isoelectric focusing, by R.C. Boltz Jr., P. Todd, R.H. Hammerstedt, W.C. Hymer, C.J. Thompson and J. Docherty; The viscosity parameter in electrophoresis, by H. Peeters.

The first two chapters treat the separation of 1) monocytes and 2) various other cells by sedimentation in density gradients at gravity = 1. The next two chapters treat density gradient centrifugation of 3) bone marrow cells, and 4) hemopoietic progenitor cells (the latter via the isopycnic approach). Chapters 5) and 6) treat cell-sizing; 5) by the Coulter counter method, and 6) with a novel laser backscattering device. In chapter 7) professor Albertsson reports on some of the more recent developments in cell separation with his two-phase aqueous partition method. The fourth part practically comprises the second half of the book; it treats the fast-moving field of preparative cell electrophoresis. In chapter 8) professor Hannig demonstrates the ever-increasing potential of his free-flow electrophoresis, e.g., in the isolation of sizeable quantities of various cells, as well as of various organelles; he also contrives a virtually total separation between inside-out and outside-in vesicles (made from erythrocyte stromata). Hjertén discusses in chapter 9) some progress in cell analysis with his horizontal rotating tube free zone electrophoresis apparatus. Just and Werner, in chapter 10), report on recent results obtained with free-flow isoelectric focusing. Boltz et al. discuss the principles of their new method of ascending density gradient isoelectric focusing of cells in chapter 11). Finally Peeters gives, in chapter 12) a disquisition on the possible influence of the viscosity parameter in electrophoretic cell separation, as well as on microviscosity of cell membranes and its measurement.

The Editor is to be congratulated on the assembly of so many diverse contributions (by scientists from two Continents) on cell separation methods, of which more than half form significant and novel contributions in an important field, that has only recently (and fortunately) begun to develop at an admirable rate. The book is strongly recommended to all who are involved in separation methods in general, and to cell biologists and immunologists in particular.

Carel J. van Oss