The MSC Enumeration Kit allows the highly reliable quantification of human mesenchymal stem cells (MSCs) from bone marrow aspirates and other sources by flow cytometry in less than an hour. It contains pre-titrated, ready-to-use antibody cocktails as well as isotype controls for the straightforward, accurate enumeration of MSCs.

- Fast and easy quantification of MSCs
- Pre-titrated ready-to-use antibody cocktail including all control reagents
- Strong correlation between flow cytometry–based enumeration and cell culture assay

MSC Enumeration Kit, human
Standardized, fast quantification of human mesenchymal stem cells

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The fast track for MSC quantification

Currently, the colony-forming–unit fibroblast (CFU-F) assay is the most commonly used method to quantify MSCs. However, this cell culture–based technique is time consuming and the results vary greatly between users. A close linear relationship between the number of CFU-F colonies counted manually after 14 days of culture and the number of CD271<sup>bright</sup> cells in bone marrow aspirate has been described.<sup>1</sup> Another study has shown that among bone marrow cells only CD271<sup>bright</sup> cells also express MSCA-1<sup>+</sup> (W8B2).<sup>2</sup> Based on these two cell surface markers, the MSC Enumeration Kit enables the fast and reliable quantification of MSCs by flow cytometry.

Determine MSC numbers in bone marrow samples accurately

The MSC Enumeration Kit provides highly consistent results from experiment to experiment. Multiple measurements performed with a single bone marrow aspirate sample demonstrate the high sensitivity and accuracy of the flow cytometry analysis (fig. 1).

Estimate the clonogenic potential of MSCs in less than an hour

Figure 2 shows that the numbers of CD271<sup>+</sup>MSCA-1<sup>+</sup> MSCs contained in bone marrow samples, determined by flow cytometry, correlate well with the numbers of CFU-F colonies derived from these samples. The numbers of CD271<sup>+</sup>MSCA-1<sup>+</sup> cells can therefore provide an indirect estimate for the cells’ clonogenic potential. The flow cytometry–based assay saves valuable time as it takes less than an hour to complete, in contrast to the CFU-F assay, which takes days or even weeks.

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**References**