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# Flow cytometry analysis of CD38 and CD45 expression intensity in multiple myeloma

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## Background-aim

Multiple Myeloma (MM) is a serious disease that remains incurable despite the introduction of a large number of targeted therapies. Flow cytometry (FCM) analyzes specific and heterogeneous characteristics of malignant plasma cells, which can guide treatment.

**The aim of this study is to assess the value of FCM in the diagnosis and management of MM.**

## Methods

- Retrospective study of 57 patients
- referred to our haematology laboratory, diagnosed with multiple myeloma during 2022-2023.
- Clinical data were collected from Immune phenotypes (IP) requests.
- For each patient, a cytological analysis and an IP were performed on fresh marrow samples.
- The IP was performed using plasma cell markers (CD38/CD138/CD45/CD19/CD56/CD117) on a FACS Canto II 6-color cytometer.
- We then analyzed the expression of CD38 and CD45 on the basis of the mean fluorescence intensity (MFI). The MFI correlates with the number of antigenic sites.

## Results and discussion

- The median age was 73.5 years [48,86]
- sex ratio M/F=1.69.
- The mean plasma cell count per FCM was 13.3%
- . CD38 expression intensity was highly variable from sample to sample, with a mean MFI of 26965, with extremes ranging from 501 to 55172.
- In our series, no significant correlation was found between CD38 MFI and clinico-biological data. CD45 was expressed in 50% of patients, with a mean MFI of 14544 [346-129244]. CD45 fluorescence intensity correlated with the presence of CRAB criteria ($p<0.05$).

The results of our study show that flow cytometry (FCM) is a relevant tool for the diagnosis and management of multiple myeloma (MM). The variability observed in CD38 expression among samples, although significant, did not allow direct correlation with clinico-biological data. This suggests that other factors, potentially not identified in this study, may influence CD38 expression, or that its role as a diagnostic and prognostic marker may be more complex than expected.CD45 expression, on the other hand, proved to be a potentially useful indicator. The positive correlation between CD45 fluorescence intensity and the presence of CRAB criteria (hypercalcemia, renal failure, anemia, bone lesions) underlines its importance as a prognostic marker. This observation could suggest that CD45 plays a role in disease aggressiveness or in the immune response of MM patients. Our results were consistent with the literature (1-5)

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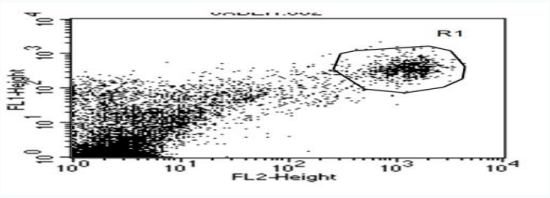


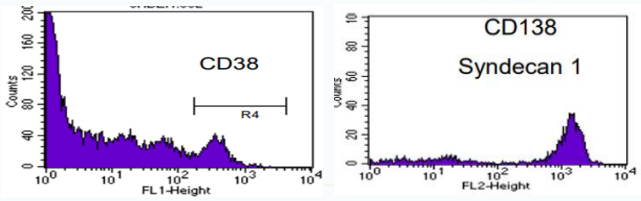


## CONCLUSION

FCM analysis is relevant to both the diagnosis and the management of MM, particularly by studying prognostic markers such as CD45, and the intensity of expression of antigens known to be therapeutic targets (CD38).

## Références bibliographiques

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