



**Fig. S1** Comparison between performances of the longer spray chamber (black bar) used in this study and the original one (white bar) in terms of S/B ratios of several elements ( $^{25}\text{Mg}$ ,  $^{31}\text{P}$ ,  $^{34}\text{S}$ ,  $^{39}\text{K}$ ,  $^{55}\text{Mn}$ , and  $^{66}\text{Zn}$ ) under the same experimental conditions using a suspension of *S. cerevisiae* cells and a conventional ICP-MS system (without the external ion pulse counting unit) with 10 ms integration time.