*Supplementary Information*

*Analytical Methods*

# Real-time characterization of mammalian cell culture bioprocesses by magnetic sector MS

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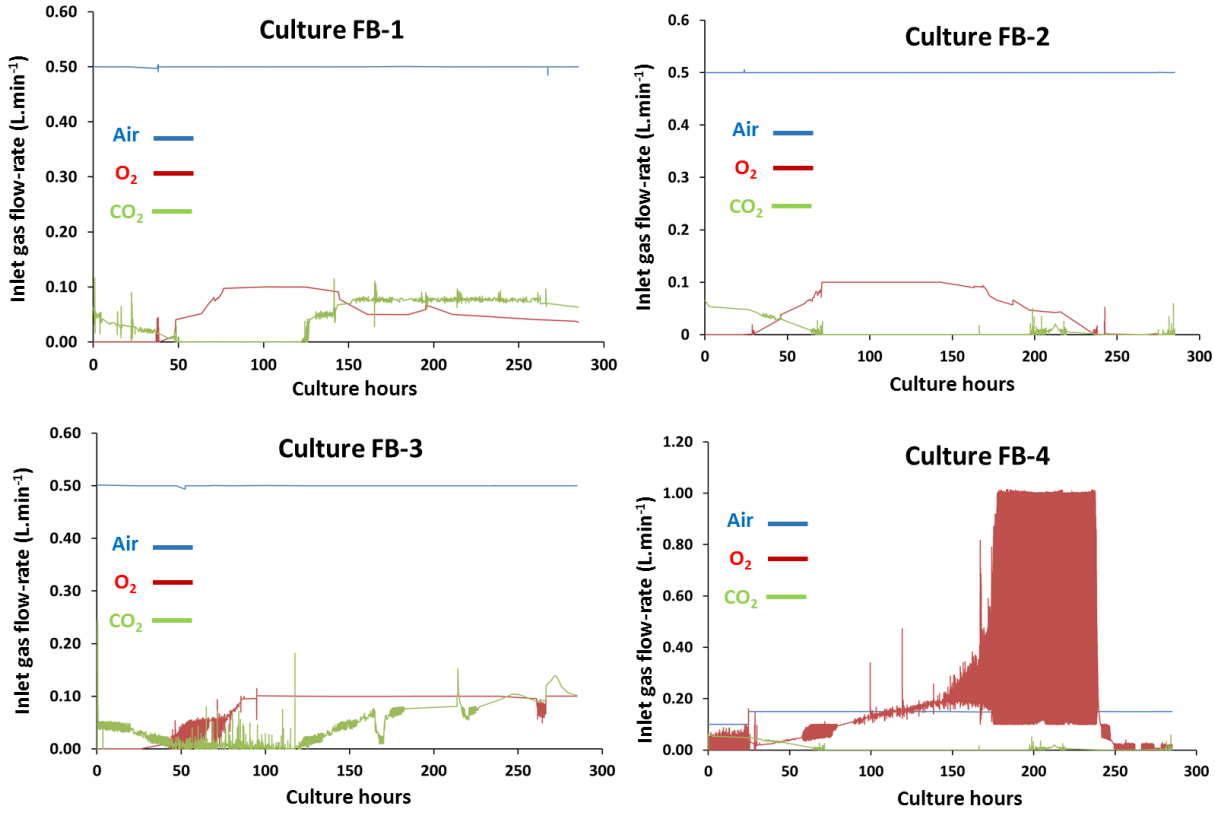


**Fig S1** Flow-rates for Air, $O_2$ and $CO_2$ delivered by the HyPerforma G3Lab controller to four fed-batch cultures which were monitored upon characterization of the exhaust-gas composition by magnetic sector MS analysis.

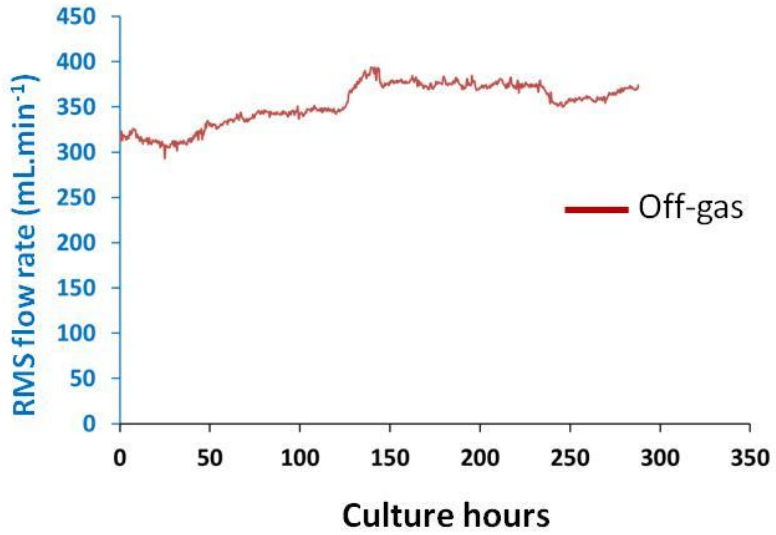


**Fig S2** Off-gas stream flow-rate in the fed-batch culture FB-2 which was monitored through the non-invasive V2 MS-bioreactor configuration. Inlet flow-rate values are not shown since in the V2 configuration the inlet gas composition was determined by analogue transfer of parameters from the G3Lab controller to the MS.

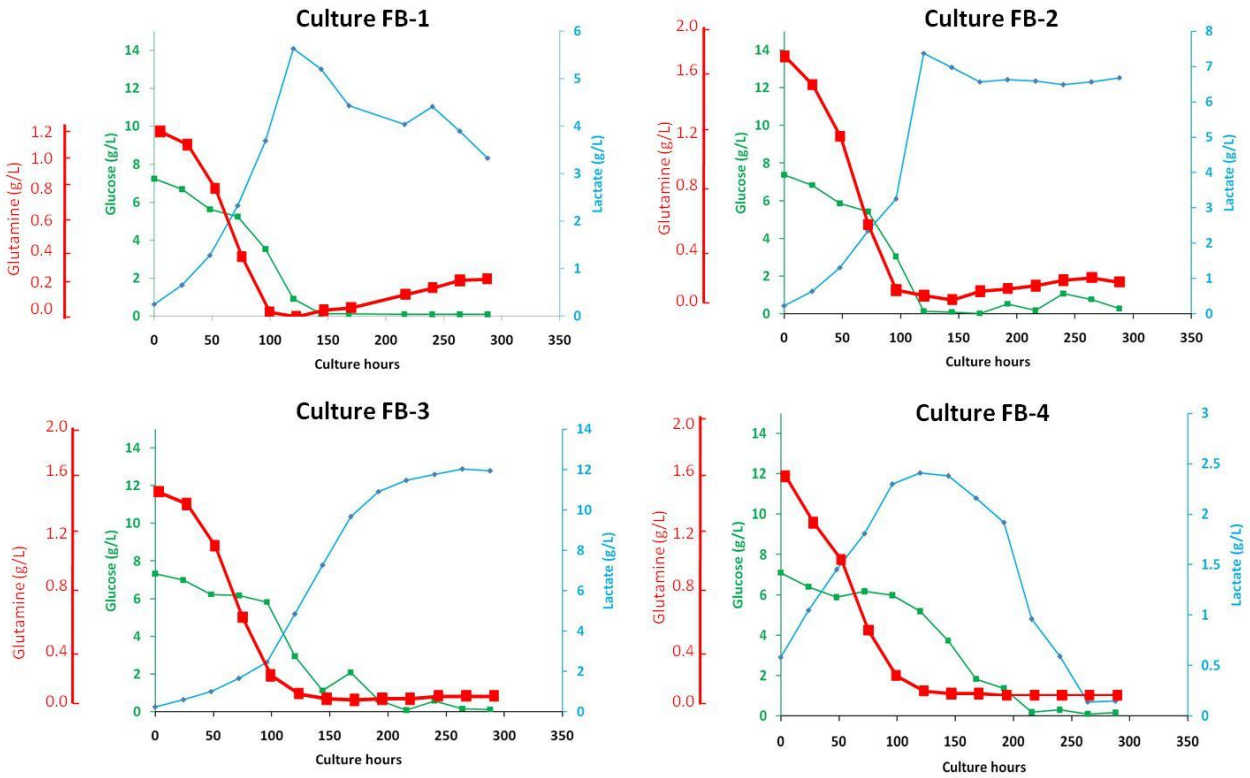


**Fig S3** Overview of glucose, lactate and glutamine profiles obtained in fed-batch cultures FB-1, FB-2, FB-3 and FB-4 respectively.

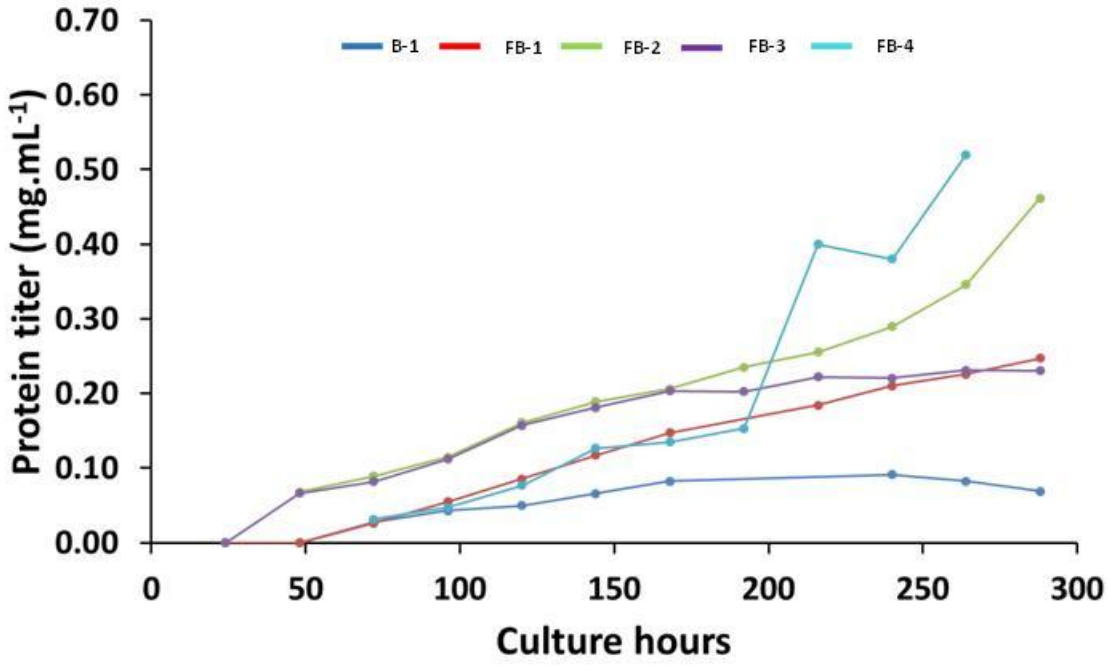


**Fig S4** Protein titer curves obtained by affinity liquid chromatography for batch (B-1) and fed-batch cultures (FB-x) evaluated upon characterization of the off-gas composition by magnetic sector MS.