Comparison of CyTOF assays across sites: Results of a six-center pilot study - DTU Orbit (14/03/2019)

Comparison of CyTOF assays across sites: Results of a six-center pilot study

For more than five years, high-dimensional mass cytometry has been employed to study immunology. However, these studies have typically been performed in one laboratory on one or few instruments. We present the results of a six-center study using healthy control human peripheral blood mononuclear cells (PBMCs) and commercially available reagents to test the intra-site and inter-site variation of mass cytometers and operators. We used prestained controls generated by the primary center as a reference to compare against samples stained at each individual center. Data were analyzed at the primary center, including investigating the effects of two normalization methods. All six sites performed similarly, with CVs for both Frequency of Parent and median signal intensity (MSI) values < .30%. Increased background was seen when using the premixed antibody cocktail aliquots at each site, suggesting that cocktails are best made fresh. Both normalization methods tested performed adequately for normalizing MSI values between centers. Clustering algorithms revealed slight differences between the prestained and the sites-stained samples, due mostly to the increased background of a few antibodies. Therefore, we believe that multicenter mass cytometry assays are feasible.

General information

State: Published
Organisations: Department of Bio and Health Informatics, Stanford University, University of Lausanne, Massachusetts Institute of Technology, Fred Hutchinson Cancer Research Center, University of Cape Town
Pages: 37-43
Publication date: 2018
Peer-reviewed: Yes

Publication information

Journal: Journal of Immunological Methods
Volume: 453
ISSN (Print): 0022-1759
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.25 SJR 1.289 SNIP 0.715
Web of Science (2017): Impact factor 2.19
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.92 SJR 1.089 SNIP 0.65
Web of Science (2016): Impact factor 2.1
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.07 SJR 1.064 SNIP 0.739
Web of Science (2015): Impact factor 1.858
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.99 SJR 1.018 SNIP 0.824
Web of Science (2014): Impact factor 1.82
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.31 SJR 1.087 SNIP 0.834
Web of Science (2013): Impact factor 2.005
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.49 SJR 1.181 SNIP 0.934
Web of Science (2012): Impact factor 2.225
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes