

Sample	Total sequenced	Fraction retained	Beacon UMIs (>1 read)	Target UMIs (>1 read)	UEIs (>1 read)
1	26832238	0.76	892372	535216	5056844
2	21355785	0.76	898039	488100	3915689
3	34846809	0.60	63857	31960	732428
4	44032216	0.82*	402575	109482	1291422
5	42669570	0.85*	152875	48577	457148

Sample	Beacon UMIs (MLE)	Target UMIs (MLE)	UEIs (MLE)	UEI/Beacon UMI (MLE)	UEI/Target UMI (MLE)
1	413574	268752	4149473	10.0	15.4
2	329848	215285	2989182	9.1	13.9
3	38307	21192	695307	18.2	32.8
4	146653	48354	757502	5.2	15.7
5	52359	19951	274540	5.2	13.8

TABLE S3: Read and UMI/UEI counts for all samples, related to Figures 2, 4-6, 5. Columns labeled “>1 read” denote status of UMIs/UEIs identified by independent clustering, whereas columns labeled “MLE” denote those that made it into the final UEI matrices for image inference. “UEI/Beacon UMI” and “UEI/Target UMI” denote ratios, important for analyzing data quality in the context of resolution defined in equation 13. Asterisks denote 24-plex samples, for which amplicon-filtering was done after UMI/UEI clustering, and therefore those discarded on this basis were not counted during initial read parsing.