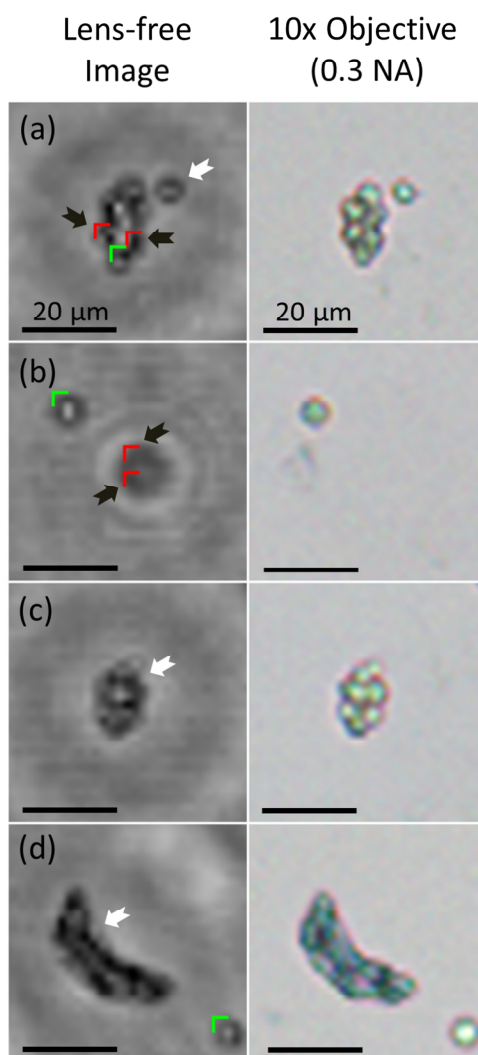**Electronic Supplementary Information**

Rapid, portable and cost-effective yeast cell viability and concentration analysis using lensfree on-chip microscopy and machine learning

Alborz Feizi, Yibo Zhang, Alon Greenbaum, Alex Guziak, Michelle Luong, Raymond Yan Lok Chan, Brandon Berg, Haydar Ozkan, Wei Luo, Michael Wu, Yichen Wu, and Aydogan Ozcan

Supplementary Figure S1: Examples of the errors made by our machine learning classification algorithm. The black arrows indicate false detections and the white arrows indicate the cells that are missed. (a) Two black arrows demonstrate false cell detection. The white arrow in (a) indicates an unstained cell not detected by the classification algorithm possibly due its proximity to a cell clump. (b) Out of focus dust particles may lead to false detections as shown here. Our cell detection algorithm currently does not include cell clumps (c & d) in its calculation of sample viability. Although not implemented in this manuscript, higher resolution lensfree microscopy through pixel super-resolution can be utilized to handle such cell clusters. Similar to the main text, the red marking indicates a stained classification and the green marking indicates an unstained classification made by the machine-learning algorithm.