With a number of single cell technologies entering the market, there is now the possibility to measure single cell protein, DNA, and functional profiles over time. Previously, cell type was defined as a series of protein markers identified. With increasing information, including dynamic data and thousands of markers instead of dozens, how should we classify cells in the future? How should we think about cell identity and what is its utility? See interesting opinions from lead researchers already in the field from a [special issue of Cell](https://www.cell.com/cell-systems/fulltext/S2405-4712(17)30091-1)