All cells in nature are covered with a dense and complex array of glycans. Cell surface glycans vary at every level of biological organization, and in response to intrinsic and extrinsic stimuli. Therefore, the cellular glycome is often referred to as the “cell signature”. We developed a glycan profiling technology called lectin microarray and analyzed cell surface glycans of various types of stem cells such as human ES cells, iPS cells, and mesenchymal stem cells. In this seminar, I will talk about the basic and application of cell surface glycans of stem cells.