What is claimed is:

1. A method of isolation of cellular nuclei comprising

loading a sample comprising cell nuclei and a sample medium comprising a dissolved paramagnetic compound or ferrofluid into a separation channel;

subjecting the sample to a magnetic force with at least one magnet to affect a separation;

collecting at least one fraction of the separated sample comprising cell nuclei without further centrifugation and;

optionally imaging the nuclei in the sample prior to, during, and/or after the separation.

2. A method according to claim 1, wherein the sample comprises from 50 to 10,000,000 cell nuclei.

3. A method according to claim 1 or claim 2, wherein the sample further comprises live cells, dead cells, or cellular debris.

4. A method according to any of claims 1-3 wherein the concentration of cell nuclei in a fraction is increased by at least 1.1:1 from the original sample.

5. A method according to any of claims 1-4 wherein the concentration of non-nuclei particles in the original sample is decreased by at least 1% in the fraction.

6. A method according to any of claims 1-5 wherein the integrity of isolated cell nuclei in a fraction from a sample is at least 30% greater than the integrity of cell nuclei isolated in a fraction from a sample by a method comprising centrifugation.

7. A method according to any of claims 1-6 wherein the cell nuclei are isolated from human cells, non-human animal cells, or plant cells.

8. A method according to any of claims 1-7 wherein the nuclei are isolated from healthy cells, diseased cells, infected cells, transfected cells, or genetically modified cells.