High-Throughput Functional Genomics Tools to Assess Cell Migration

The solution is a method that enables massively parallel separation of cells based on their migratory capabilities, allowing for assessment of different types of cell migration including chemotaxis, chemokinesis, amoeboid 3D migration, and galvanotaxis.

What is the Problem?

Cell migration play an important role in the development and maintenance of multicellular organisms. Current methods to study cell migration relies heavily on videomicroscopy, limiting studies to tens or hundreds of individual cells. As a result, there is a need for simple and scalable methods to study cell migration.

What is the Solution?

The solution is a method that enables massively parallel separation of cells based on their migratory capabilities, allowing for assessment of different types of cell migration including chemotaxis, chemokinesis, amoeboid 3D migration, and galvanotaxis. This method can also be applied to perform genome-wide genetic screens to identify genes important for cell migration across different migratory contexts. Furthermore, this technology can be used as tools for selective separation of cells to spatially isolate sub-populations of cells.

What is the Competitive Advantage?

The competitive advantage of this technology lies in its ability to significantly increase the number of cells that can be studied in parallel for cell migration. This high-throughput method enables the study of the proliferation, differentiation, and context-dependent migration of different cell types. The development of this new functional screening strategy will provide new biological insights. As the global cell-based assays market size was valued at $15.6 billion in 2022 with an expected CAGR of 8.7%, there is a significant opportunity for this technology to expand the capabilities of current cell migration assays.

References

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