

## S24-3 Cell Network-based Drug Discovery using On-chip Cellomics Technology

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Between the cell-level class and tissue/organ-level class, cell network class should be clarified for understanding of the mechanism of the function of complex living systems. For example, the community effect of cell networks, and the circulation process of stimulated signals among cells cannot be measured by the isolated single cell screening. For understanding of those cell network functions, we have fabricated on-chip single cell-based screening system, and are measuring the community effect of cells and so on. Applying this system, we have started to construct the practical drug discovery systems such as TdP screening assay using cell network-based re-entry model on the chip. On the other hand, applying our on-chip multi-electrode measurement module, we can screen the response of neural network firing caused by the compounds. Such a constructive approach for the re-formation of artificial cell network model is now coming realistic by use of our on-chip cellomics technology. In this symposium, we explain the mechanism of cell network we have found, and discuss about its importance for re-construction of minimum tissue/organ model on the chip. We also explain some examples of on-chip technology for the practical usage for next generation of drug discovery.