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(54) Title: HUMAN-ON-CHIP OPERATING SYSTEM

(57) Abstract: A human-on-chip plate. The human-on-chip plate may include, at least one 3D culture biochip, at least one micro-valve, at least one microfluidic channel, at least one inlet or outlet plate port. The outlet ports from one chip may be connected to another chip by routing the valves. Multiple chips may be connected in parallel, in series or in combination and one or more chips in the human-on-chip plate may be bypassed. Each fluid connection may be altered independently and at any time. The at least one valving system connects or separates different compartments of and between the organ-on-chip system. The at least one inlet and one outlet ports to access and block the microchannels. The at least one valving system could allow for sampling, changing the model flow map, and introduce or reduce at least one fluidic chamber.