1. Technical description
   1. Technical drawings of bioreactor components + written description
   2. Modes of use
2. Claims
   1. Removable glass bottom allowing for
      1. direct cell culture on it
      2. in situ polymerisation of photo-crosslinkable materials (hydrogels, …)
      3. in-situ photo-stimulation of light-sensitive materials (hydrogel, sensors, ROS generators, …)
      4. Live imaging through transparent bottom during dynamic cultures of 2D/3D cellular constructs cultivated on the glass discs or onto the membrane
   2. Support for 2D/3D static and dynamic cell cultures with a sensorised culture chamber resembling 24 well plate volume allowing for cell expansion (i.e. cell confluence) and subsequent dynamic cultures in two different configurations
      1. Conventional culture on the well bottom
      2. Transwell configuration mimicking 12 transwell insert surface
      3. Monitoring through electrical measures (TEER measurements, required only for interface cultures)
   3. Flow: 2 inlets / 2 outlets (one inlet/outlet pair above the interface and one below)
      1. Single side
      2. Double side (ALI or LLI cell culture)
      3. 3D Construct perfusion (sigmoidal 🡪 upper in/lower out preferred embodiment)
   4. Re-usable glass housing
3. SoA
   1. Sensorised culture supports allowing for both
      1. cell expansion (i.e. cell confluence) and subsequent dynamic cultures without the need of transferring pre-expanded construct from static culture devices
      2. Live imaging

**Live Imaging =** in situ imaging of the three-dimensional (3D) culture environment using microscopy. The visualisation of cell response to their environment, in real time, helps to further elucidate the influences of biomaterial surface features, scaffold architectures, and culture parameters (e.g. flow induced shear) on cell response and growth of new tissue(s).