

## Dynamic 3D Cell Culture for drug and radiotracer evaluation

We here present a novel, preclinical, 3 dimensional analysis method for the evaluation of substances and compounds labelled with radio- or fluorescence tracers. The system is composed of a mobile phase (cell culture media) and a stationary phase consisting of cells, spheroids, organoids or co-culture systems embedded in a flexible biomaterial. Analysis is performed with a radio- or fluorescence detector (i.e.  $\mu$ PET or  $\mu$ SPECT). Compared to existing systems, our method and device attains a higher measurement throughput and enables the evaluation of drugs and radiotracers independent of animal testing.

**REFERENCE:**  
698.17

**APPLICATIONS:**  
Multicell Cultivation  
Drug evaluation  
Medical imaging

**DEVELOPMENT STATUS:**  
Prototype available

**IPR:**  
EP18163900.6 filed  
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**AVAILABLE FOR:**  
License agreement for  
market launch

**INVENTOR:**  
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### BACKGROUND

Currently, preclinical evaluation of compounds is mainly based on 2D cell culture to a minor extent also a 3D cell culture both followed by *in vivo* animal testing. Often, the predictive ability of cell culture methods is limited and drugs fail in animal testing as the 2D cell culture based test systems are not able to sufficiently visualize the *in vivo* situation.

Our technology allows the analysis of 3 dimensional tissue cultures derived either from 2D cell cultures, spheroids, organoids, or co-cultures thereof in a column-based assay.

### TECHNOLOGY

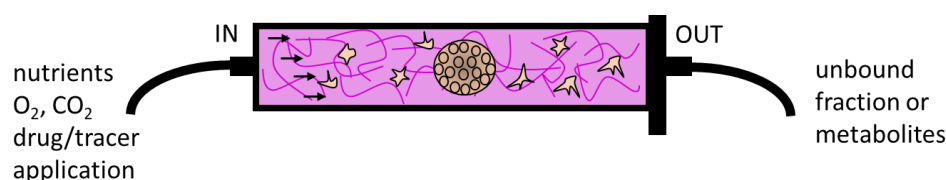


Fig 1: Scheme of dynamic column

Our novel system enables a flow of a mobile phase through a biological stationary phase containing f.e. tumor spheroids embedded in a flexible bioscaffold. The continuous or interstitial flow furthermore imitates blood flow and leads to tissue penetration of the drug. Therefore, offering a more *in vivo* like situation and higher validity of the experiments.

### BENEFITS

- Efficient & fast evaluation of PET (or other) tracers or drugs
- High measurement throughput
- Low costs
- Ready-to-use columns
- No animal testing

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