

High-Throughput Production of Matrix-Embedded Multicellular Tumour Spheroids by Drop-on-Demand 3D Bioprinting

Inventia Life Science, Suite 1.13 / 90-96 Bourke Rd, Alexandria NSW, AUSTRALIA 2015

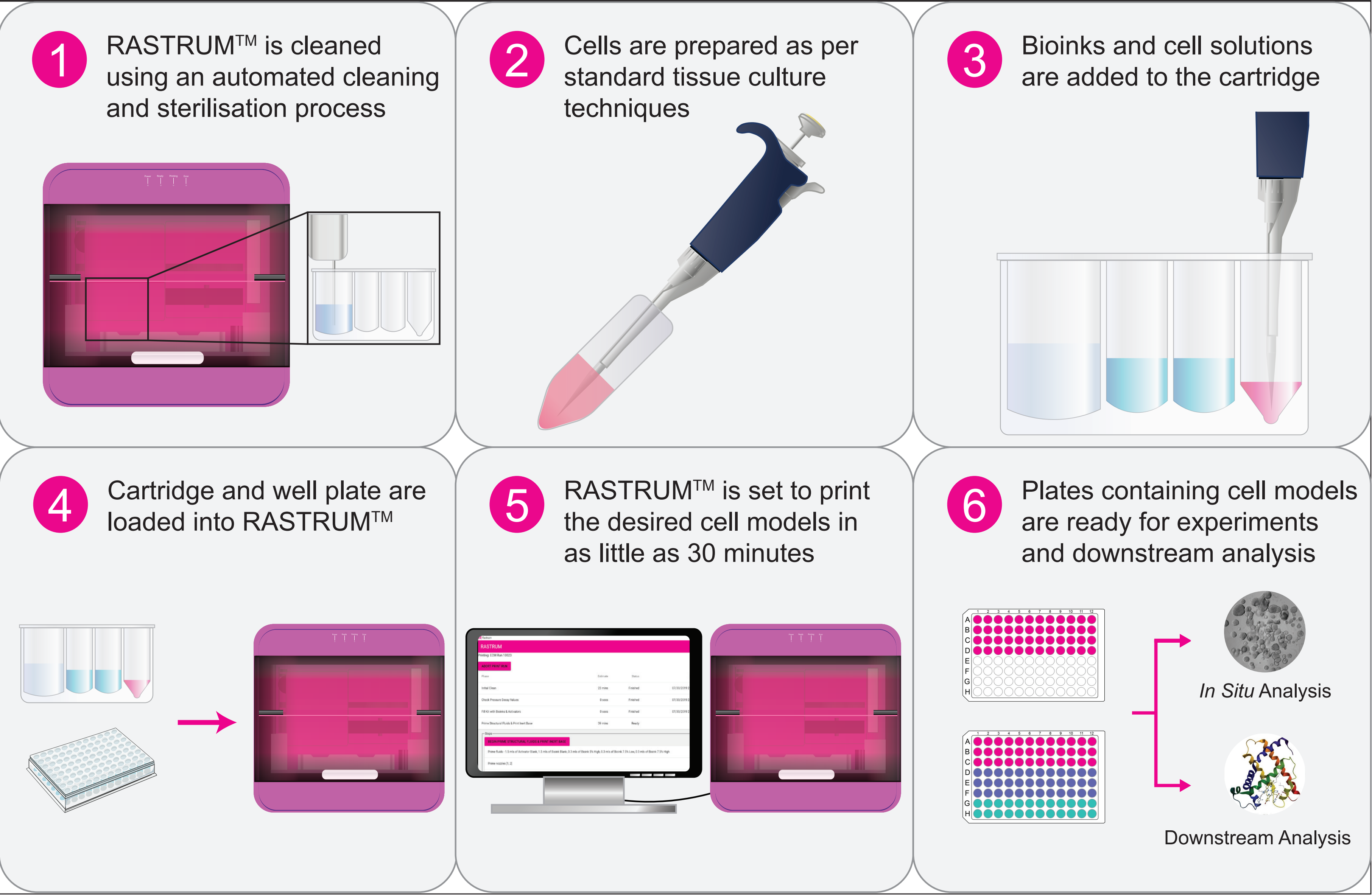
Telephone
AU 1800 849 128
EU +353 818 370 035
US +1 833 462 5959

Contact Us
Inventia Life Science
Pty Ltd
www.inventia.life
info@inventia.life

Introduction

- Clinical development of oncology drugs have less than 6.7% success rate.
- Although 2D cell cultures have poor clinical translatability, it is still the most predominantly used *in vitro* model due to its simplicity and convenience.
- 3D cell models recapitulate the physiology of *in vivo* tumours and exhibit more accurate cellular responses to drug treatments compared to their 2D counterparts.
- RASTRUM combines drop-on-demand bioprinting with synthetic modifiable matrices to automate and tailor the ideal 3D cell model

RASTRUM™ High-throughput Workflow



Compatibility of RASTRUM™ Cell Models

RASTRUM utilises drop-on-demand digital bioprinting technology to create 3D cell model systems that resemble physiological environments.

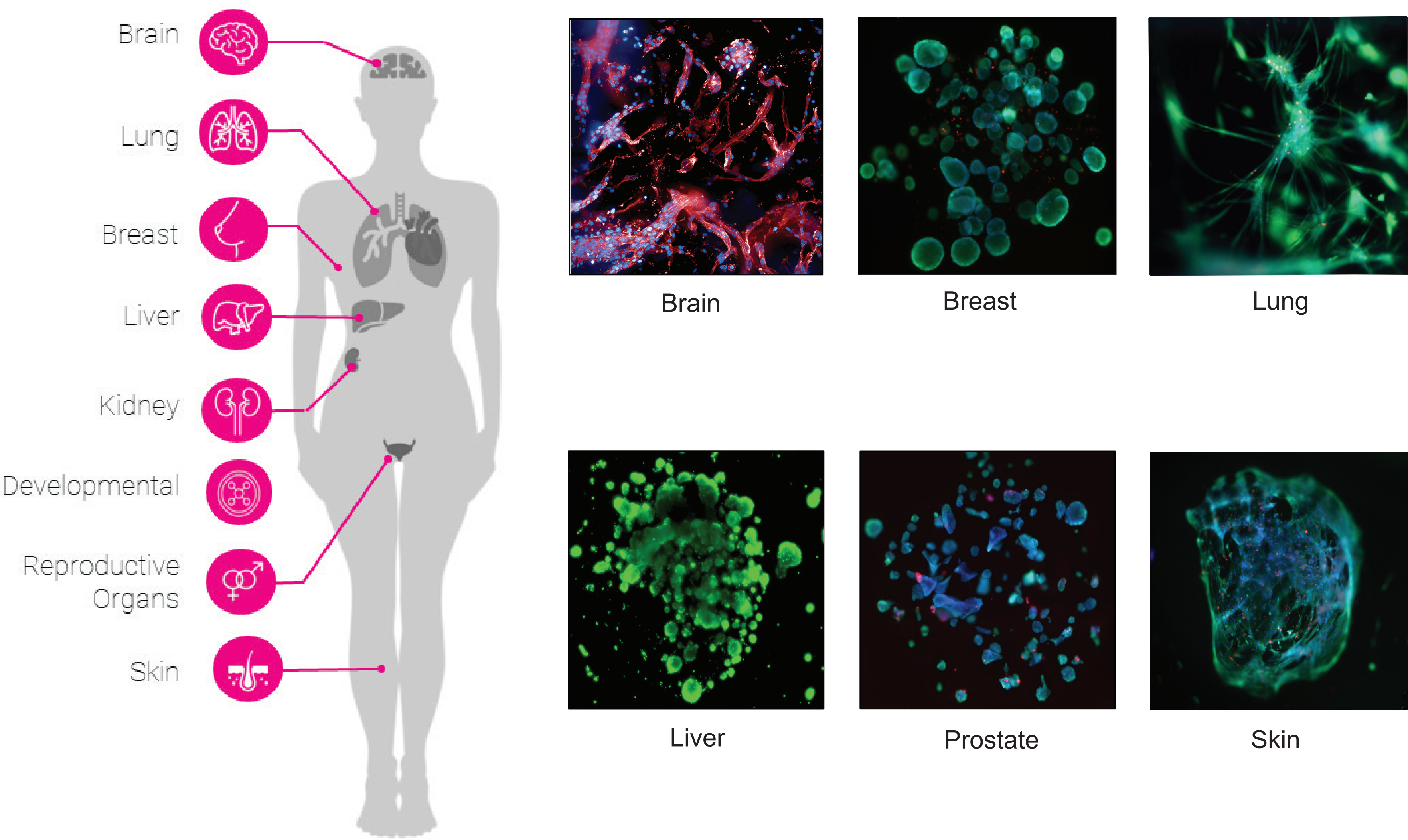


Fig 2. List of representative tissues that have been validated in RASTRUM cell models. RASTRUM matrices promotes cell growth in various types of tissue, both healthy and disease.

3D Co-Culture Cell Models

RASTRUM matrices provide a highly versatile scaffold with tunable properties that are optimised for both mono- and co-culture models.

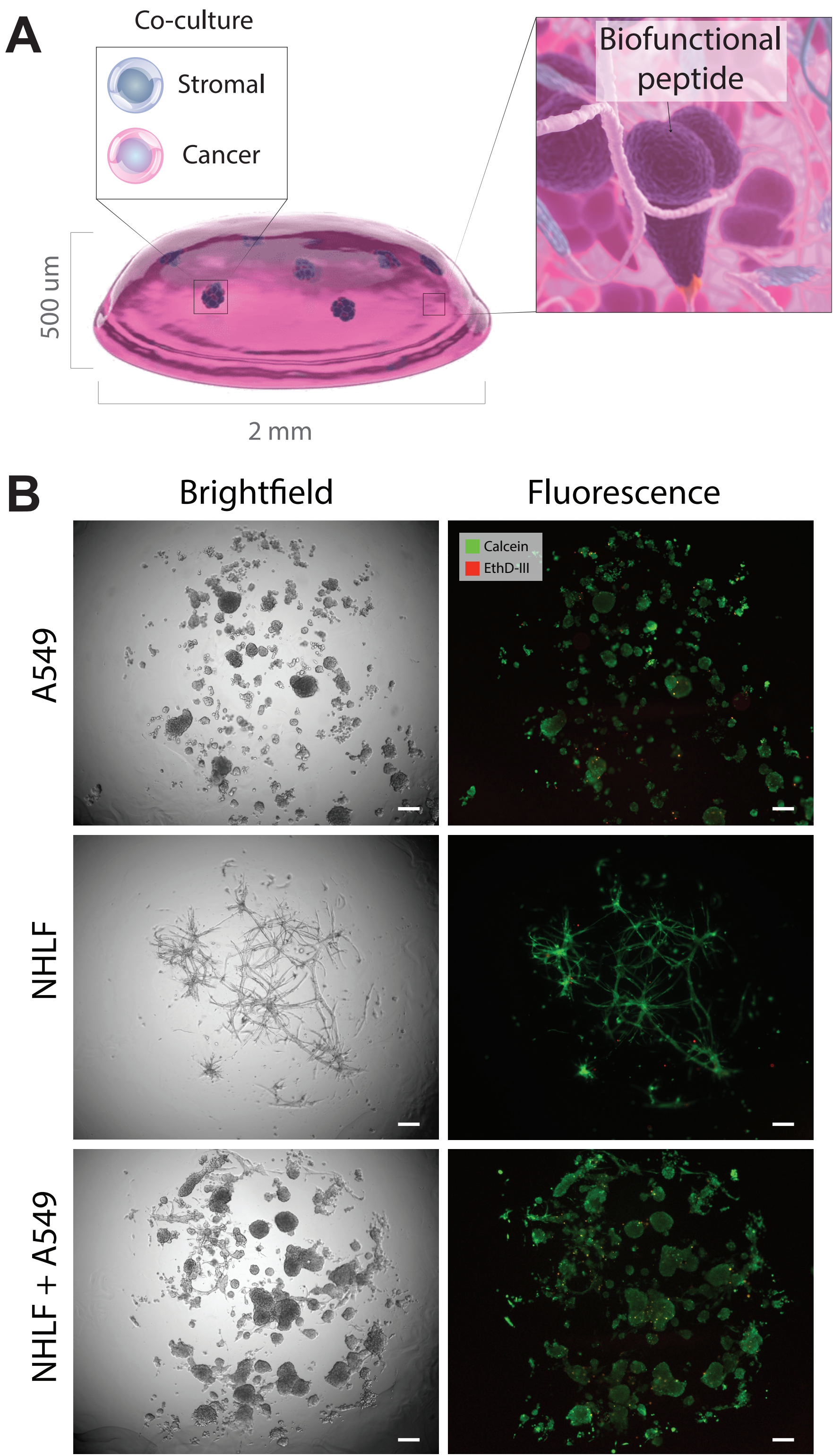


Fig 1. A) RASTRUM matrices are PEG-based bioink that instantly gels at room temperature when combined with an activator solution. B) Brightfield and fluorescence images of NHLF lung fibroblasts and A549 lung cancer cell monocultures and co-cultures. Scale bars are 200 µm.

RASTRUM™ Applications

- Fundamental biology**
Improve your biological models using drop-on-demand bioprinting with synthetic modifiable matrix systems.
- Drug discovery**
Compatibility with standard analysis techniques to enable high-throughput cell imaging and quantification.
- Personalised screening**
Achieve high quality patient 3D cell models easily with precise droplet control of matrix components and gentle deposition of cells with no loss in sample.

