



FUTURE TARGETED HEALTHCARE MANUFACTURING HUB



Biomanufacturing solutions to transform healthcare precision in the biotherapeutics sector

UCL Biochemical Engineering has an outstanding track record and is a world leader in bioprocess research across a range of sectors. UCL's *Future Targeted Healthcare Manufacturing Hub* engages leading academics across the UK as Spokes. This national asset is valued in excess of £20M over 7 years (2017–2024).

The *Hub* will address the manufacturing, business and regulatory challenges to ensure that new targeted biological medicines can be developed quickly and manufactured at a cost affordable to society.

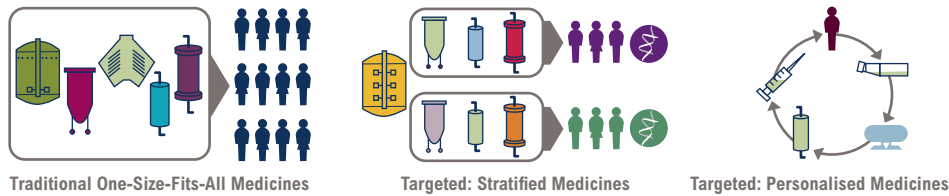
The research will span stratified protein medicines targeted to particular patient groups through to truly personalised cell-based medicines.

The *Hub* is unique in the biomanufacturing space, and is being supported by a large number of the leading manufacturers and suppliers in the biotherapeutics industry and non-governmental associations.

EPSRC

Pioneering research
and skills

HOW CAN STRATIFIED PROTEINS AND PERSONALISED CELL THERAPIES ACHIEVE SUCCESS IN MANUFACTURING AND BUSINESS?



UCL Hub Vision

- By 2025 targeted biological medicines will transform the precision of healthcare prescription, improve patient care and quality of life.
- The current “one-size-fits-all” approach to drug development is being challenged by the growing ability to create stratified and personalised medicines targeted to specific sub-populations and even individuals.
- Without significant manufacturing and supply innovations, the promise of targeted healthcare will remain inaccessible for many. The impact on health and well-being is profound.
- The *Hub* will be the first globally recognised consortium for the creation, delivery and dissemination of innovative manufacturing research, underpinning cost-effective, robust manufacture, supply and delivery of targeted biotherapeutics.

UCL Hub Collaboration and Deliverables

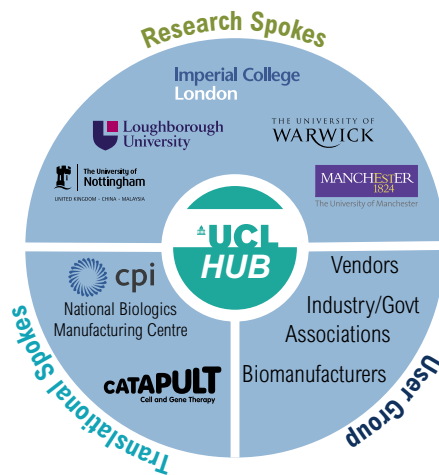
The *Hub* will work with its network of users and academics to deliver the vision, with the core research focusing on:

- **Grand Challenge 1:** Transforming supply chain management and economics for targeted biotherapeutics *with novel computational decision-support tools*
- **Grand Challenge 2:** Sustainable manufacturing for future targeted biotherapeutics *with novel bioprocesses, analytics and control algorithms*

This paradigm shift in manufacturing practice will provide the manufacturing infrastructure needed for sustainable healthcare.

UCL Hub Impact

The benefits of the *Hub* extend beyond the users who have co-developed the proposal. Our innovations will move the reality of targeted healthcare forward significantly by identifying the necessary technological and logistical solutions. Targeted interventions will provide a step change for many patients in terms of widened access to new treatments. The range of targets is huge and includes treatments for cancers and the re-programming of degenerative disorders such as dementia. This is a radical new opportunity for the industry. The *Hub* will undertake rapid and effective development of new clinical medicines and promises a new horizon for the sector.



BENEFITS FOR *HUB* USER GROUP

Research Excellence

- Access to internationally-leading academics and top research graduates with expertise in bioprocessing, decisional tools, process control and analytics, cell therapy manufacture.
- Wider collaboration opportunities within the *Hub* User Group via Engineering Doctorate (EngD) studentships.
- Opportunity to create a Centre of Excellence with UCL focusing on a series of linked research projects for a more holistic and synergistic approach.

Influence the Sector

- Steer the research agenda over the next 7 years, aligned to your organisation’s priorities.
- Participate in user feasibility projects to evaluate *Hub* outputs using your systems and processes.
- Boost your profile through joint peer-reviewed articles from user feasibility projects.
- Leverage funding for greater impact via industry-led InnovateUK projects.

Priority Access to Hub Outputs

- Early access to new process, analysis and control technologies and methodologies via the Collaboration Agreement and IP provisions.
- Benefit from novel decision-support tools providing a robust framework for selecting development and manufacturing options, thus reducing the risk of misallocating significant cost and time.
- Access to highly skilled graduating doctoral and PDRA researchers.

UCL HUB LEADERSHIP

Hub Director

Prof. Nigel Titchener-Hooker, FEng
Executive Dean of the UCL Faculty of Engineering Sciences

Hub Co-Director

(User Engagement & Translation)

Prof. Suzanne Farid, FICHEM
Professor of Bioprocess Systems Engineering
Deputy Head of Department (Education)

Hub Co-Director

(Community Engagement & Training)

Prof. Paul Dalby, FRSC
Professor of Biochemical Engineering & Biotechnology
Deputy Head of Department (Research)
Director of the Centre for Doctoral Training