

NANOFACTURING: SCALE UP OF ULTRA-SMALL GLYCAN COATED GOLD NANOPARTICLES

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About Midatech

Midatech is a nanomedicine company focused on the development and commercialisation of multiple, high-value, targeted therapies for major diseases with unmet medical need. The company is advancing a pipeline of novel clinical and pre-clinical product candidates based on its proprietary gold nanoparticle GNP and microsphere sustained release (SR) technology platforms with a clear focus on the key therapeutic areas of Cancer and Immunotherapy for autoimmune diseases, with several promising programs ongoing from research/pre-clinical through to Phase I studies. The company is rapidly assembling strong foundations for an outstanding specialty pharma company with a strong R&D pipeline and robust revenue-generating US commercial operation marketing a growing portfolio of oncology supportive care products

About Nanofactoring

NANOFACTURING, an EU funded project, will design and build pilot and large scale manufacturing lines for the production of nanopharmaceuticals, focusing on the scale up of **glycan-coated gold nanoparticles**, which have showed considerable potential for enabling more effective and less toxic therapeutic interventions. The transfer and scale up of these initiatives to commercial success has been limited. Nanofactoring aims to address the challenges and bottlenecks in the development and delivery of these medicines at a large scale to the market. Principal objectives:

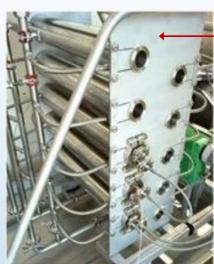
- Build pilot scale GMP manufacturing line to supply nanomedicines at scale
- Establish a pilot line in Europe for the process development and scale up of nanopharmaceutical manufacture
- Establish a full spectrum of chemical and biological characterization tests to guarantee the quality, safety and efficacy of the product
- Bring an innovative healthcare solution to the market for treatments in CNS, Antiviral and Oncology applications.
- Create a European manufacturing ecosystem for nanopharma

Partners



Industrial Scale-Up

Development and scale up of the process for the base gold nanoparticles



GNP Industrial Manufacture using Continuous Flow Technology

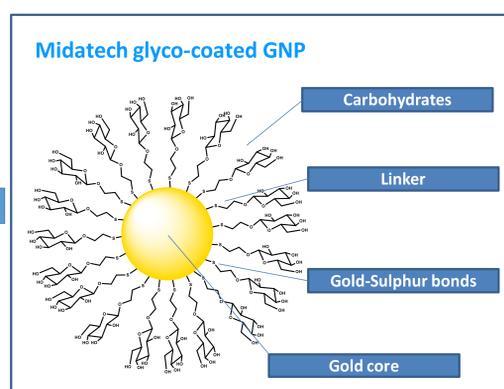


Purification by Continuous Flow centrifugation



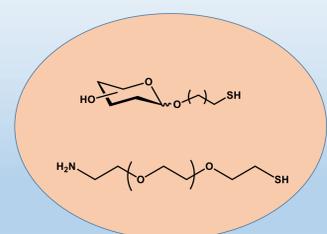
GNP Industrial Purification using Tangential Flow Filtration

NANOPHARMACEUTICAL MANUFACTURE: STAGES



LIGANDS

- Optimization of synthetic routes for ligand manufacturing
- Scale-up of ligand manufacturing process to supply kilos



Thio-glycoconjugates and amino-thio-PEG linkers

Pilot Scale GNP Batch

Scale up of current 400ml GMP batch manufacturing process for gold nanoparticles up to 5 and 10 litre reactor volumes.



Reactor 5-10 L

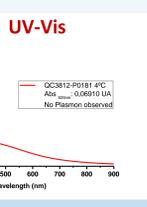
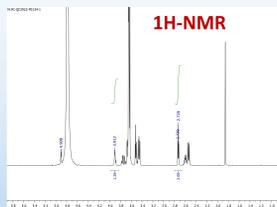
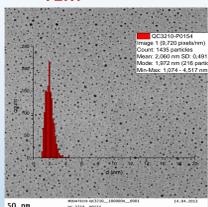


Tangential Flow Filtration

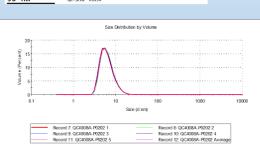
Nanopharmaceutical Characterization

A full package of physicochemical, biophysicochemical and biological characteristics of the nanopharmaceuticals will be developed.

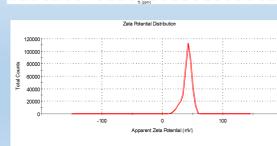
TEM



DLS



Z-potential



XPS

