

# About CatSci Ltd

- CRO providing customised chemistry R&D services
- Privately owned business based in Cardiff, UK
- Spun out of AstraZeneca, trading since Q2 2011
- Currently 16 employees (10 PhDs)
- 50% revenue growth per annum (2014-16\*)



# About CatSci Ltd

- Service cover all aspects of synthetic chemistry
  - Chemical development for synthesis and manufacture
  - Custom synthesis and material supply up to 1 kg (non-GMP)
  - Applied catalysis for economic and environmental benefit
- Extensive knowledge and experience in a wide range of challenging chemistry
- Customers in the life sciences, agrochemicals, fine chemicals, flavours & fragrances...

# Chemical Development (Pharma)

- Late Discovery – Pre-clinical
  - Rapid synthesis
  - Reaction and route development
  - Tech package for CMO selection
- Phase I – Phase III+
  - Process dev for robust scale-up
  - Analytical method development
  - Design of Experiments / QbD
  - Maximising yield, optimising quality
  - Reducing waste, minimising cost



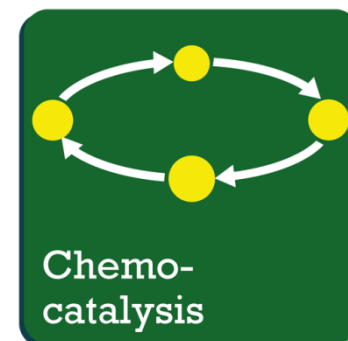
# Custom Synthesis and Material Supply

- Up to 1 kg delivery
  - Small molecule drugs (non-biologics)
  - Complex chemicals
  - Air and moisture sensitive (e.g. ligands)
  - Purification and crystallisation
  - Full analytical QC testing and release
- For GMP and larger scale use partners (SAFC, Shasun...)



# Applied Catalysis

- 150+ projects
- Reaction screening
  - Unbiased, independent
  - Targeted and rational
  - Unique way of working
  - Tailored (rapid or detailed)
- Enabling chemistry
  - Trouble-shooting
  - New routes
- Process Optimisation



# CatSci Partnering

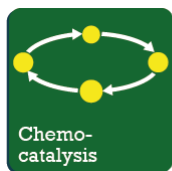
- Full-time equivalent services (FTE)
  - stage-gated payments
  - customer ownership of all IPR
- Fee-for-service projects (FFS)
  - based on project scope and value
  - defined work packages
  - deliverables (£/g)
  - customer ownership of all IPR
- Tactical shared risk/reward projects
  - milestone payments
  - shared ownership of IPR with CatSci
- Collaborative RDI via grant funding
  - ring-fenced IPR

# CatSci Products & Technology



- Pre-order of 500 for first cross-coupling kit
  - Looking to co-launch 10 kits in 2016/17
  - In-house investment in production facility now
- Co-development of industrial biotech
  - Improve API synthesis
  - Commercial exploitation in 2017/18
- Co-development of functionalised silicas
  - Improve API purification and industrial catalysis
  - Commercial exploitation in 2017/18
- 2 other Innovate UK funded R&D projects with UK partners

**Maximising yield » Optimising quality » Reducing waste » Minimising cost**



**Unbiased catalyst screening for bio- and chemo-catalytic transformations**

**New route design and evaluation, including enabling chemistry**

**Rapid development and scale-up of challenging transformations**

**Process optimisation using advanced experimental design (DoE, PCA)**

**Custom synthesis of complex materials, including NCEs and ligands**

**Metal recycle, removal & recovery**

**Training & consultancy**

**Agrochemicals • Fine Chemicals • Flavours & Fragrances • Pharmaceuticals**