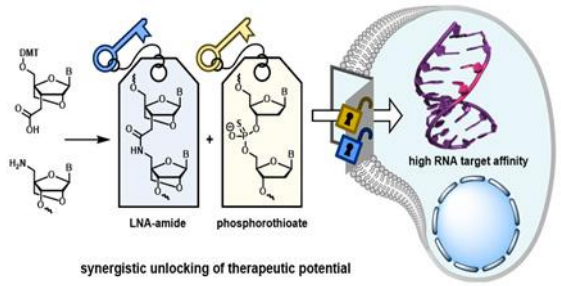
PROJECT NUMBER

**14955, 14808, 18633**

# Increasing the potential of the next generation therapeutic oligonucleotides

Chemical synthesis strategy for increasing the stability and biocompatibility of chemically-synthesised therapeutic oligonucleotides to enable broader medical application of the technology.

**Applications:** Oligonucleotide chemistry, biopharmaceuticals, molecular diagnostics, biomaterials, RNAi therapeutics




| Features | Benefits |
|---|---|
| Causes more selective and stronger binding to complementary nucleic acids within RNA/DNA complexes -higher target affinity and specificity; Form stable duplexes with RNA, and importantly have selectivity for RNA over DNA | Causes minimal structural deviation to the nucleic acid and increases stability |
| Less susceptibility to enzymatic degradation than native DNA/RNA; Ability to modulate or eliminate anionic charge on DNA/RNA analogue | Creates more robust, inert and stable DNA or RNA molecules |

| Features | Benefits |
| --- | --- |
| Synthesis by rapid, efficient and scalable solid phase techniques | Well structured manufacture and production processes |
| Exceptional stability in biological media, and crucially in cell studies; Improves cell uptake of nucleic acids | Highlights the therapeutic potential of the technology to address RNA targets in many diseases |
| Wide range of applications | Potential applications in oligonucleotide chemistry, biopharmaceuticals chemical biology, nanotechnology, nanomedicine, molecular diagnostics, and biomaterials |

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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