

# Carbon-14 and Tritium Radiolabelled Services

Pharmaron's two UK-based radiochemistry facilities offer unparalleled knowledge and resources for the custom radiosynthesis of carbon-14 ( $^{14}\text{C}$ ) and tritium ( $^3\text{H}$ ) labelled compounds. Our experienced team and state-of-the-art laboratories ensures delivery of high-quality radiolabels within agreed timelines. Our experts can guide you on the best strategy for labelling your compound including label position. Pharmaron's dedicated  $^{14}\text{C}$  and  $^3\text{H}$  radiochemists provide in-depth support for labelling a wide range of small and large molecules employing many specialized and proprietary synthesis and reaction steps.

## Capabilities

- Custom radiosynthesis of  $^{14}\text{C}$  and  $^3\text{H}$  labelled small & large molecules
- Full GMP radiosynthesis & release of [ $^{14}\text{C}$ ]APIs (drug substance and drug product)
- Clinical-grade re-purifications of [ $^{14}\text{C}$ ]APIs (non-GMP)
- Clinical and non-clinical metabolism (ADME/DMPK) studies
- Quantitative metabolite profiling and metabolite ID for human, animal and in vitro ADME studies
- Radiolabelled biologics - employing covalent 'radio-tagging' techniques with  $^{14}\text{C}$  and  $^3\text{H}$
- ISO 9001: 2015 certified, GMP, GLP

## Services

- Early-stage consultation on optimal strategy for radiosynthesis
- Labelling, synthesis methods, in-house synthesis of radiolabelled precursors
- Advice on position of radiolabel in the molecule and specific activity options
- Full analytical chemistry support – method validations, specification testing, certificates of analysis, stability assessments, structural confirmation (NMR) and CMC analytical reports
- Documented synthesis reports and supporting regulatory data
- Global shipping, full inventory-management services, radiolabel storage and certified destruction.

## Specialties

- Complex multi-step syntheses including, chiral purifications, polymers, fermentations, peptides, antibody-drug conjugates (ADCs), oligonucleotides
- Formulation of suitable dosage forms e.g. solutions, powder-in-capsules
- Spray-dried [ $^{14}\text{C}$ ]API powders
- [ $^3\text{H}$ ]methylations for high specific activity neuroscience ligands
- Catalytic exchange, catalytic reduction and halogen displacement reactions with tritium gas
- Tritiated water exchange and borotritide reduction reactions
- [ $^3\text{H}$ ]oligonucleotide radiosynthesis
- Tritium 'radio-tagging' of proteins/peptides e.g. employing [ $^3\text{H}$ ]NSP
- Covalent [ $^{14}\text{C}$ ] 'radio-tagging' techniques