Overview of available ^{11}C systems

Based on the Modular-Lab technology

The Modular-Lab technology offers a reliable and versatile way for the synthesis of Carbon-11 based tracers.

General Facts

No liquid nitrogen traps required. [^{11}C]CO_2 gas can be directly trapped on molecular sieve or Carbon Molecular Sieve (CMS) and released. Compared to other commercially available systems, we offer three production approaches for ^{11}C based tracers:

- wet chemistry production of [^{11}C]Methyl Iodide
- gas phase production of precursors [^{11}C]Methyl Iodide and [^{11}C]Methyl Triflate and production of various ^{11}C based tracers including purification and reformulation
- [^{11}C]CO converter

Wet Chemistry

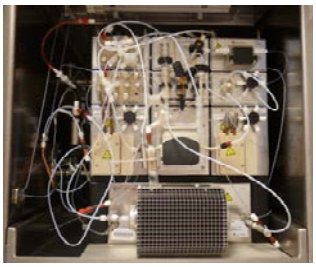
with Modular-Lab Standard[1]

- Synthesis templates for [^{11}C]Methionine, [^{11}C]Choline, [^{11}C]Acetate
- Proven by publication
- Nearly unlimited flexibility provided by Modular-Lab
- System can be upgraded with e.g. HPLC or any other Modular-Lab equipment for more complex syntheses

with Modular-Lab PharmTracer[1]

- Method based on Modular-Lab Standard described above
- Same system for three tracers: [^{11}C]Methionine, [^{11}C]Choline, [^{11}C]Acetate
- Production of [^{11}C]Methyl Iodide included on cassette
- Sterile, single-use cassettes and synthesis templates available for the three tracers
- No cleaning or drying procedure necessary after synthesis
- Chemical can be obtained ready-to-use
- Easy handling and preparation
- Only system using sterile cassettes for ^{11}C chemistry
- System also suitable for ^{18}F, ^{68}Ga and therapeutic radiometal labeling

Gas Phase System (GPS)



with Modular-Lab Standard[3]

- Direct conversion of [^{11}C]Methyl Bromide intermediate into either [^{11}C]Methyl Iodide or [^{11}C]Methyl Triflate
- System uses recirculation technology for optimal yield
- Reliable high quality production of [^{11}C]Methyl Iodide, [^{11}C]Methyl Triflate
- High specific activity
- All necessary process parameters are measured (e.g. activity and temperature in all traps)
- Simple to operate, only two preparation steps necessary (new ascarite traps, check bromine level) before system is operational for the rest of the day
- Pressure test of recirculation system included
- No iodine required (can cause obstruction of valves, difficult to control iodine vapor concentration, heating necessary for evaporation)
- Uses bromine instead (no obstructions, no heating for evaporation necessary)
- Very good performance when producing [^{11}C]Choline, [^{11}C]Methionine in combination with Modular-Lab PharmTracer or when producing [^{11}C]Acetate in combination with Modular-Lab Standard
- System suitable for 10 syntheses a day without interruption by reloading of chemicals
- System can also provide [^{11}C]CO_2
- Easy to operate, all relevant lines and tubes are accessible
- No water or air sensitive chemicals necessary
- Can be combined with Modular-Lab Standard or Modular-Lab PharmTracer. Both systems can be operated from the same electrical cabinet and laptop

Eckert & Ziegler

Overview of available ^{11}C systems

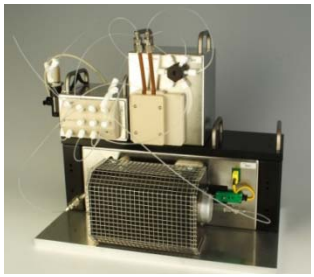
GPS with additional Modular-Lab PharmTracer

- Cassettes and synthesis templates for [^{11}C]Methionine, [^{11}C]Choline, [^{11}C]Acetate
- Preliminary synthesis template for [^{11}C]Raclopride
- HPLC purification possible
- System also suitable for radiometal chemistry (^{68}Ga, ^{90}Y, ^{177}Lu, ^{111}In)
- Production of custom made cassettes possible

GPS with additional Modular-Lab Standard

- Nearly unlimited flexibility provided by Modular-Lab modules
- HPLC purification possible
- Fully programmable

[^{11}C]Carbon Monoxide production[2]



- System available for production of [^{11}C]Carbon Monoxide - [^{11}C]CO Converter
- Special system available for incorporation of [^{11}C]Carbon Monoxide into precursor
- Please contact us in case of interest

References

1. Boschi et al., *Appl. Radiat. Isot.*, **2009**, *67*, 1869 – 1873. (description of tracer production by Modular-Lab Standard).
2. Kealey et al., *Chem. Commun.*, **2009**, 3696 – 3698. (production of [^{11}C]carbon monoxide by Modular-Lab).
3. Mock et al., *Nucl. Med. Biol.*, **1999**, *26*, 467 – 471. (basic description of gas phase system).
4. Shao et al., *J. Label. Compd. Radiopharm.*, **2011**, *54*, 819 – 838. (results with Tracerlab FX$_{C\text{-}Pro}$).

Eckert & Ziegler
Eurotope GmbH

Robert-Rössle-Strasse 10
13125 Berlin
Germany
Phone: +49 30 941084-197
Fax: +49 30 941084-470

eurotope@ezag.de
www.ezag.com/radiopharma

Your contact in USA & Canada:
Eckert & Ziegler Radiopharma Inc.

63 South Street, Suite #110
Hopkinton MA 01748
USA
Phone: + 1 508 497 0060
Fax: + 1 508 497 0061

eurotope@ezag.com
www.ezag.com/radiopharma

7131-0067 / Rev.02 / 08.2013