

iMiDEV[®] Microfluidic Synthesizer

Datasheet

The ideal microfluidic environment to develop your radiotracers

Installed in a hotcell, in connection with a source of radioisotope, iMiDEV[®] is the perfect tool for radiotracer development and production in a unique innovative microfluidic environment.



With the onset of theranostics and personalized medicine, medical centers need access to a wider variety of specific tracers in smaller quantities manufactured onsite for specific patients. iMiDEV designed for R&D and preclinical phases allows to meet this need.

Microfluidic advantages

Thanks to our unique cassette based on microfluidics :

- Low use and consumption of reagents allowing to save costs and minimize waste
- Faster reaction rate even at lower temperature
- Fully integrated valves, channels, reaction chamber and SPE chambers minimizing dead volumes
- Completely closed consumable preventing contamination, especially from long half-life radioisotopes
- Very easy-to-use cassette without any need for extra tubing and all the fluidic connections made in one movement



Versatile

iMiDEV is based on a unique microfluidic single-use cartridge architecture preventing cross-contamination. The following radioisotopes have already been used successfully with iMiDEV : ^{11}C , ^{18}F and ^{68}Ga (see below for the tracers list).

Automated mode

iMiDEV can work in a fully automated mode, including HPLC, with dedicated scripts. Scripts are created using existing and already tested functions, which makes the creation of new recipe fast and reliable.

Optimized process

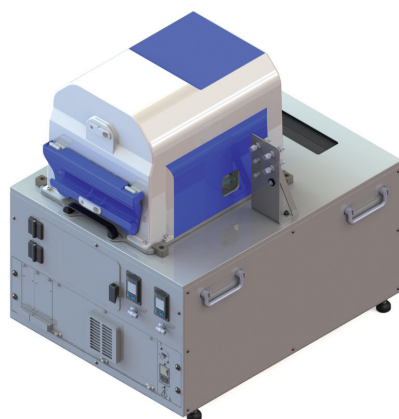
With iMiDEV, every parameters can be controlled and monitored throughout the whole process. Synthesis can be done either manually or in a fully automated manner. Each synthesis generates a report collecting all the data from the actuators and sensors, allowing for quick and easy process optimization.

Easy to install

iMiDEV can be easily installed and used in a hotcell in direct connection with a cyclotron or any other source of radioisotopes.

Easy to transfer

Once the process is established, the transfer to other iMiDEV or iMiLAB and the scale-up towards clinical practice is immediate.



GENERAL INFORMATION

Manufacturer	PMB-ALCEN
Synthesizer's name	iMiDEV
Width x depth x height	518 mm x 656 mm x 650 mm
Weight	58 kg (Box and Control Module)
HPLC Purification	Yes, integrated and automated
HPLC peak extraction	Automated on UV or radioactivity signal
Heating and cooling	Yes, 20 to 135°C in less than 2'
Process controls	4 Radioactivity sensors, pressures reading, temperatures feedback

TRACERS

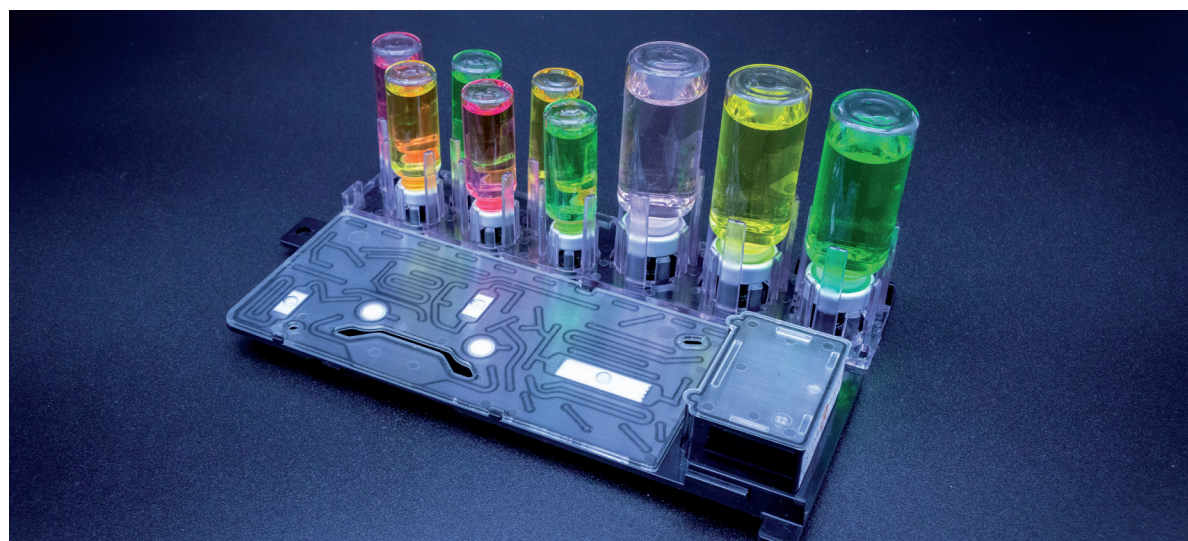
¹¹ C - labeled tracers	[¹¹ C] flumazenil, [¹¹ C] L-deprenyl, [¹¹ C] Methionine, [¹¹ C] Choline
¹⁸ F - labeled tracers	[¹⁸ F] DPA-714, [¹⁸ F] NaF, [¹⁸ F] AIF-PSMA-11
⁶⁸ Ga - labeled tracers	[⁶⁸ Ga] Ga-FAPI-46, [⁶⁸ Ga] Ga-PSMA-11, [⁶⁸ Ga] Ga-DOTA-TOC, [⁶⁸ Ga] Ga-citrate

CASSETTE DETAILS

Microfluidic valves	34, controlled independantly
Vials	9, 6x4 mL and 3x15 mL
Mixing chambers	4, before SPE and reaction chamber
SPE Beads chambers	3, beads customizable on request

ENERGIES

Compressed air	Quality: filtered, dry and oilfree Pressure: 7 bar Max flowrates: 3 L / min Connection: LeGris 6 mm tube
Nitrogen	Quality: 5.0 Pressure: 4 bar Max flowrates: 3 L / min Connection: LeGris 6 mm tube
Electricity	Connection: IEC 230 V In operation: 70 W Stand-by: 5 W



iMiGiNE

PMB

PMB

ALCEN

PMB designs, manufactures and commercializes high-technology products used in the medical, nuclear power, research, defense & security and industry fields. Our expertise lies in the brazing of complex mechanical assemblies, as well as in the design and manufacture of linear accelerators and cyclotrons.



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