Pharmacokinetic properties of S-ketamine and ketamine racemate after dry powder inhalation, intravenous and intratracheal administration in rats

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This study was supported by the National Centre for Research and Development (POIR 1.1.1.1).

KETAMINE METABOLISM

Simplified scheme of enantiomer specific metabolism of (S,R)- Ketamine

PK STUDY PLAN

DRY POWDER INHALATION

INTRAVENTRIAL ADMINISTRATION

INTRATRACHEAL ADMINISTRATION

PK STUDY PLAN

PHARMACOKINETICS

CONCLUSIONS

- Dry powder inhalation administration provided satisfying systemic and brain tissue exposure with the 85% bioavailability for both S-ketamine and racemate dosing.
- Intravenous and intratracheal administration provided a comparable pharmacokinetic profile with very high, 95%, bioavailability for both routes.
- The inhalation route of administration could provide a novel solution for ketamine delivery and offer additional advantages including efficient and precise dosing and comfortable, preferable administration over intravenous route.

The research reported here was supported by Celon Pharma S.A. and NCBR.