cyprotex AN EVOTEC COMPANY

In vitro **ADME & PK**

Monoamine Oxidase (MAO) Reaction Phenotyping

Background Information

'In human brain the predominant form is MAO-B, expressed at highest levels in astrocytes and serotonergic neurons, while MAO-A is expressed at highest levels in catecholaminergic neurons.'

[1]Hotamisligil GS and Breakefield XO (1991) *Am J Hum Genet* **49(2)**; 383–392

- Monoamine oxidases (MAO) are membrane-associated enzymes located specifically on the outer mitochondrial membrane. They are the major enzymes participating in the catabolism of monoamine neurotransmitters and related exogenous amines.
- Two isoforms of MAO exist, MAO-A and MAO-B, which differ in their substrate specificity, inhibitor selectivity and tissue distribution.
- Selective MAO-A inhibitors are useful in the therapy of depression and anxiety whereas MAO-B inhibitors are often used in the treatment of Parkinson's and Alzheimer's diseases.
- Cyprotex's MAO reaction phenotyping assay identifies if your compound is a substrate for either MAO-A or MAO-B.

Protocol

Test System
hMAO-A and hMAO-B expressed enzyme

Test Article Concentration
1 µM (different concentrations available)

Time Points
0, 5, 15, 30, 45 min

Negative Control
cDNA expressed control preparation (no MAO present)

Positive Control
Kynuramine

Test Article Requirements
100 µL of a 10 mM DMSO solution (or equivalent amount in solid)

Analysis Method
LC-MS/MS

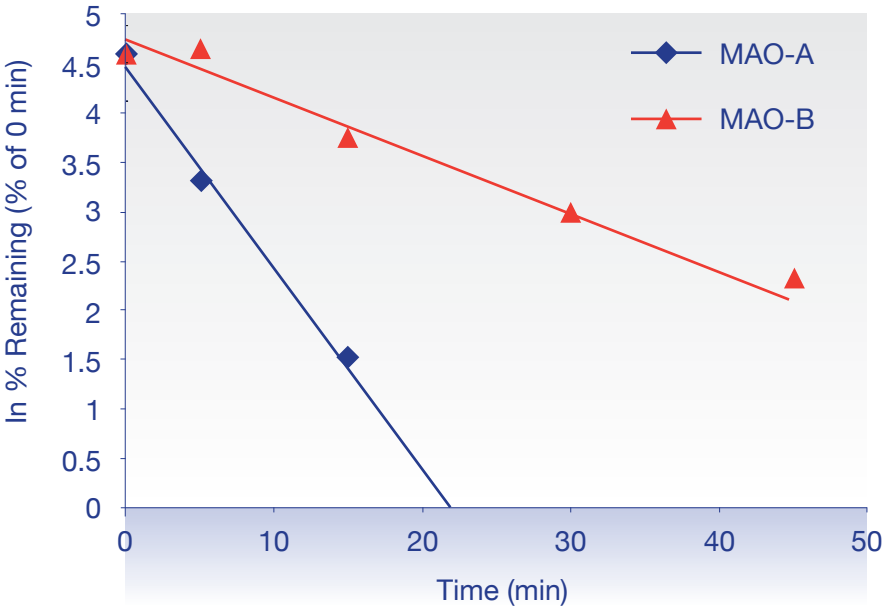
Data Delivery
% Parent compound remaining at each time point for each isoform
Half life
Standard error of half life

To find out more contact **enquiries@cyprotex.com**

Monoamine Oxidase (MAO) is a critical enzyme in the degradative deanimation of biogenic amines throughout the body[1].

Figure 1

Metabolic stability of the MAO substrate kynuramine over 45 min in the presence of MAO-A and MAO-B expressed enzyme (each data point is mean of n=3).



References

[1] Hotamisligil GS and Breakefield XO (1991) Human monoamine oxidase A gene determines levels of enzyme activity. *Am J Hum Genet* **49(2)**; 383-392