| | | |
|---|---|---|
| | **Experiment title:**<br>Binding of safinamide to human monoamine oxidase B | **Experiment number**:<br>MX 267 |
| **Beamline**:<br>ID14 2 | **Date of experiment**:<br>21 April 2004 / 23 April 2004<br>from: 16 June 2004 to 17 June 2004 | **Date of report**:<br>22 June 2004 |
| **Shifts:**<br>3 | **Local contact(s)**: | *Received at ESRF:* |

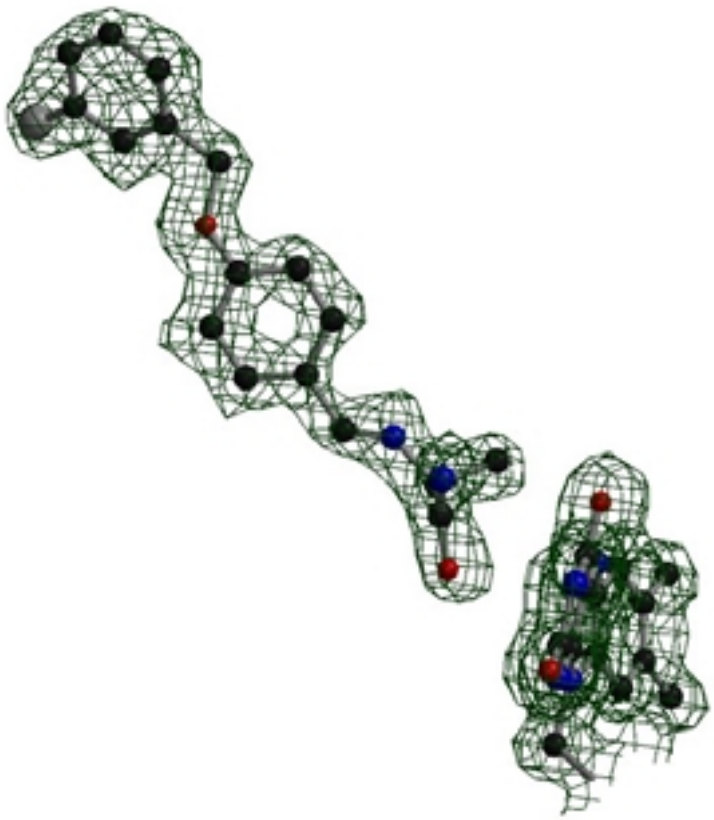
**Names and affiliations of applicants** (* indicates experimentalists):

Claudia Binda* and Andrea Mattevi

Univerisity of Pavia

## Report:

Safinamide is a highly specific inhibitor of human monoamine oxidase B (MAO B). The compound is being tested in phase II/III clinical trials for the treatment of the Parkinson's disease. Moreover, it has shown considerable efficacy as anti-epileptic agent. We have solved the three-dimensional structure of MAO B in complex with safinamide at 1.5 Å resolution. The inhibitor is very well defined by the electron density map which is of remarkable quality (probably the best so far seen in our MAO B crystallographic studies). Most importantly, the structure shows that the inhibitor is non-covalent unlike most of the clinically used MAO inhibitors that typically function as suicide substrate that covalently bind to the flavin cofactor. These initial results promise to shed light into the medicinal chemistry properties of safinamide and provide the bases for further studies on the safinamide class of MAO B inhibitors.



Unbiased 2Fo-FC map of safinamide bound in front to  the flavin cofactor of MAO B. Data collected at ESRF. The contour is 1 σ. The resolution is 1.5 Å.