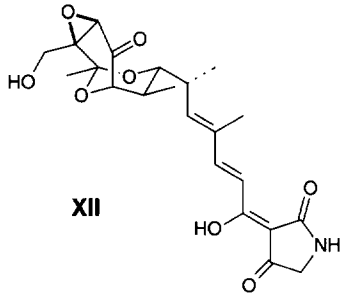
## Enantiospecific route to tirandamycin B

Tirandamycin B **XII** is a dienoyl tetramic acid antibiotic which was originally isolated from the culture broth of *Streptomyces flaveolus*. This compound possesses antimicrobial activity as well as inhibitory activity against bacterial DNA-directed RNA polymerase.

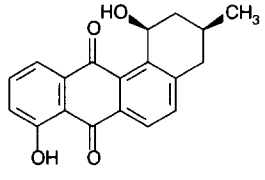


**XII**

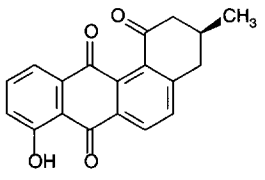
Shiratani, T. and coworkers [*Chem. Commun.* (1996) 21–22] describe the stereocontrolled enantiospecific synthesis of an enal intermediate from (*S*)-3-benzyloxy-2-methylpropanol using a highly regio- and stereo-selective methylation step.

## Total synthesis of angucyclinone antibiotics

Larsen, D.S., O'Shea, M.D. and Brooker, S. [*Chem. Commun.* (1996) 203–204] describe the first asymmetric synthesis of the angucyclinone antibiotics emycin A **XIII** and ochromycinone **XIV** from 5-hydroxy-1,4-naphthoquinone using a chiral Lewis acid derived from (*S*)-3,3'-diphenyl-1,1'-binaphthalene-2,2'-diol to promote the kinetic resolution of a racemic diene in a Diels-Alder reaction.



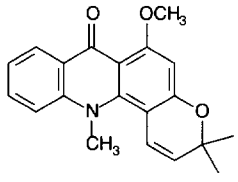
**XIII**



**XIV**

## Regiospecific synthesis of acronycine

The acronycine alkaloid **XV** has been shown to have antineoplastic activity against C-1498 myelogenous leukemia, a tumour which is unresponsive to other antitumour agents. Anand, R.C. and Selvapalam, N. [*Chem. Commun.* (1996) 199–200] describe a the synthesis of acronycine and related alkaloids using a highly regiospecific prenylation of 3,5-dimethoxyacetanilide and cyclization of 2-[3,5-dimethoxy-2-(3-methylbut-2-enyl)]aminobenzoic acid under mild conditions.



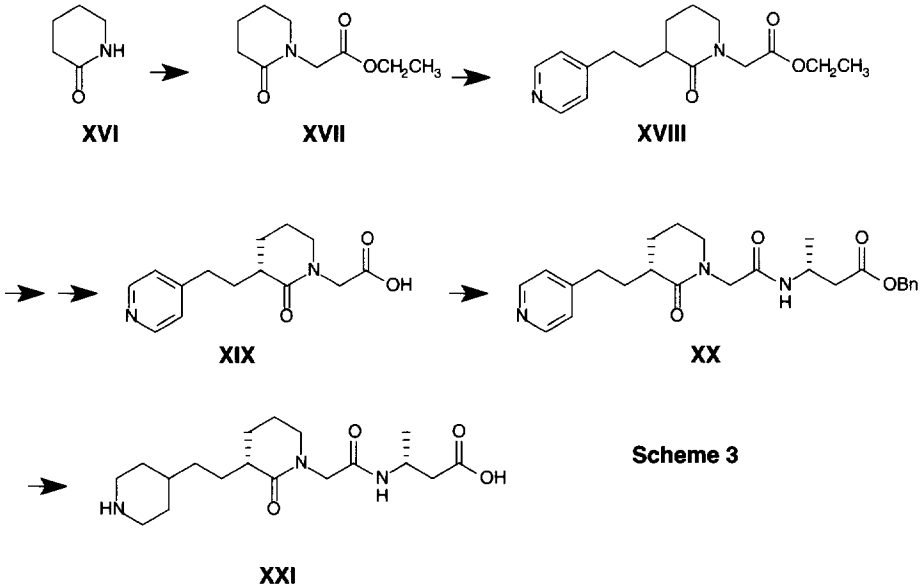
**XV**

## Synthesis of L-734,217

L-734,217 **XXI** is a nonpeptide, orally active fibrinogen receptor antagonist that is presently undergoing clinical trials as a potential inhibitor of vascular occlusion by thrombus formation associated with cerebral and cardiovascular diseases. Chung, J.Y.L. and coworkers [*J. Org. Chem.* (1996) 61, 215–222] report a six step synthesis of L-734,217 suitable for large-scale production (Scheme 3). The synthesis involves the conversion of 2-piperidone **XVI** to ethyl (2-oxopiperidin-1-yl)acetate **XVII** followed by a novel chemoselective silyl-mediated conjugate addition of **XVII** to 4-vinylpyridine. The hydrolysis and kinetic resolution of product **XVIII** with quinine yielded **XIX** which was was coupled with benzyl 3-(*R*)-aminobutyrate in a biphasic system to give **XX**. Concomitant hydrogenation of the pyridine ring and debenzylation yielded L-734,217 **XXI** in 20% overall yield.

## Nitric oxide sensor

Nitric oxide is now widely accepted as having a wide range of biological roles. However, the detection of nitric oxide, particularly *in vivo* is problematic. Leung, E. and coworkers [*Chem. Commun.* (1996) 23–24] report the development of novel *in vivo* nitric oxide sensor based on graphite-epoxy electrodes modified with *N,N'-O*-phenylenebis(salicylidineiminato)iron(III). The electrode has been successfully used by the group to monitor *in vivo* levels of nitric oxide in the muscle and liver of anaethetized rats which increased on perfusion with L-arginine, the biological precursor to nitric oxide and decreased on administration of L-ω-*N*-monomethyl arginine (L-*N*MMA), a nitric oxide synthase inhibitor. Such an electrode will have application in the investigation of the physiological role of nitric oxide *in vivo* and may also have utility in the screening of molecules that modulate the release of nitric oxide *in vivo*.



**XVI** **XVII** **XVIII**

**XIX** **XX**

**XXI**

**Scheme 3**