Introduction

This issue of Haemostasis is based on the presentations which were made during the First International Symposium on Hirudin, June 23-24, 1989, in Frankfurt am Main (FRG) during the 1989 Spring Meeting of the German Society of Angiology. The objective of this meeting was to provide a review of the pharmacological and preclinical development of recombinant hirudin (r-hirudin).

For nearly half a century, hirudin has been an interesting antithrombotic agent since its purification and characterization by Markwardt and his coworkers. Since the early 60s, natural hirudin has been used by investigators as a reagent and anticoagulant, e.g. to investigate platelet function in the presence of calcium ions. At that time hirudin was an expensive and rare product which has not available in sufficient quantities to allow clinical use. The situation has remained so for the following 20 years.

With the development of r-hirudin, this thrombin inhibitor has gained renewed great interest. Many new investigations on the pharmacology of natural and r-hirudin have been published during the last few years. New recombinant hirudins are now available in the near future in large quantities. Phase I trials with r-hirudin are ongoing. The first clinical trials will start in the early 90s.

Hirudin is a very specific thrombin inhibitor. It is, therefore, interesting for basic research, particularly for the further clarification of the formation of thrombin at the platelet surface and its inhibition by hirudin, heparins and other glycosaminoglycans. Furthermore, r-hirudin can be used as a probe in investigations of the regulatory role of thrombin in normal physiology. There is a strong hope, based on experimental data, that hirudin will be an effective drug in cardiovascular surgery. It may supplant heparin in extracorporeal circulation. Hirudin will be studied as an anticoagulant and antithrombotic agent for the prevention and treatment of disseminated intravascular coagulation, in hemodialysis, in the prevention of arterial occlusions and reocclusions and also for the prophylaxis of venous thromboses in patients at high risk for thromboembolic events.

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