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## Innovation in the prevention of blood clots

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### **Demand:**

Blood clotting is a vital process of the body helping to close wounds. However, under certain circumstances, this process can cause severe to life-threatening diseases – so called thromboses. If a blood clot (thrombus) breaks free and travels through the body, it can block vital vessels. Thromboses can lead to strokes, heart attacks or pulmonary embolism. For example, thromboses can occur after major orthopaedic surgery because the deep leg veins are injured and the mobility of the patients is restricted. Annually, about 6.5 million people suffer from thromboses. It is among the most common causes of death worldwide. The standard therapy against thrombosis with anticoagulants currently involves regular injections or extensive blood monitoring, which are inconvenient, time demanding and costly for both the patients as well as the nursing personnel.

### **Solution:**

An ideal anticoagulant should combine the following advantages: an oral administration, a predictable profile, a wide therapeutic window, a fixed dose without the need for routine coagulation monitoring, as well as no food or drug interactions. A new mechanism of action targets the key enzyme of the coagulation process, the so called factor Xa (ten a).

### **Implementation:**

Rivaroxaban currently is the most extensively studied oral factor-Xa-inhibitor in clinical development. The clinical trial program will evaluate the product in the prevention and treatment of a broad range of acute and chronic blood-clotting disorders and is expected to enroll more than 60,000 patients. In September 2008, rivaroxaban, administered as one tablet, once-daily, was approved in the EU for the prophylaxis of venous thromboembolism in adult patients after elective hip and knee replacement surgery. In a large study program in this indication, rivaroxaban demonstrated higher efficacy than the current standard therapy, while maintaining a similar safety profile. It does not require

routine coagulation monitoring. Furthermore, because of its oral administration and fixed dosage, treatment could be facilitated for both patients and doctors. Therefore, rivaroxaban could contribute to improve patients' quality of life and has the potential to save lives.

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