

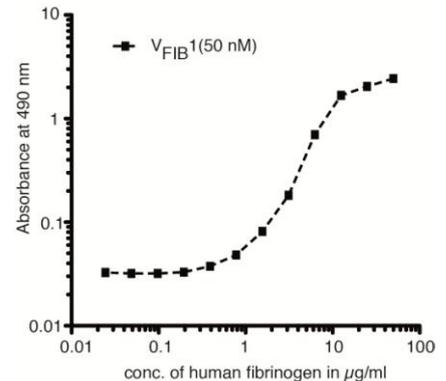
Nanobody to detect fibrinogen in blood.

The research Group lead by Dr. Luis Ángel Fernández at The National Center for Biotechnology (CNB-CSIC) has developed a nanobody (a single domain antibody) to specifically detect fibrinogen in plasma. Industrial partners interested in a product license are being sought.

An offer for biological product license

Abnormal high fibrinogen levels in plasma are associated with cardiovascular diseases, whereas abnormal low concentrations are associated with risk of bleeding.

Nanobodies are single-domain antibody fragments formed by the variable domain of heavy-chain-only antibodies found in camelids, also known as VHH. These single domain antibodies constitute the smallest domains of natural antibodies having full antigen-binding capacity (molecular weight ranging between 12 and 14 KDa) and have demonstrated to be an advantageous alternative to monoclonal antibodies. Fibrinogen is a 340 KDa plasmatic glycoprotein produced in the liver. It is involved in the final step of blood coagulation. Abnormal fibrinogen concentration in blood has been reported to be associated with cardiovascular diseases, venous thrombosis or myocardial infarction. The reference levels of fibrinogen in plasma are between 1.5 and 4.5 mg ml⁻¹. Lower protein concentration indicates risk of bleeding, whereas higher concentrations reveal an important risk for ischemic vascular or coronary accidents. Due to its clinical importance, fast, reliable and reproducible methods for the accurate determination are in great demand.



Detection of human fibrinogen concentration in plasma by an ELISA-based method.

Main innovations and advantages

- The nanobody is produced in bacteria with less cost than conventional monoclonal antibodies.
- The nanobody of the invention has been used as a captured or detection antibody in an electrochemical immunosensor device that is also available for licensing.
- The nanobody could be also used to develop other diagnostic kits such as ELISA kits.

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