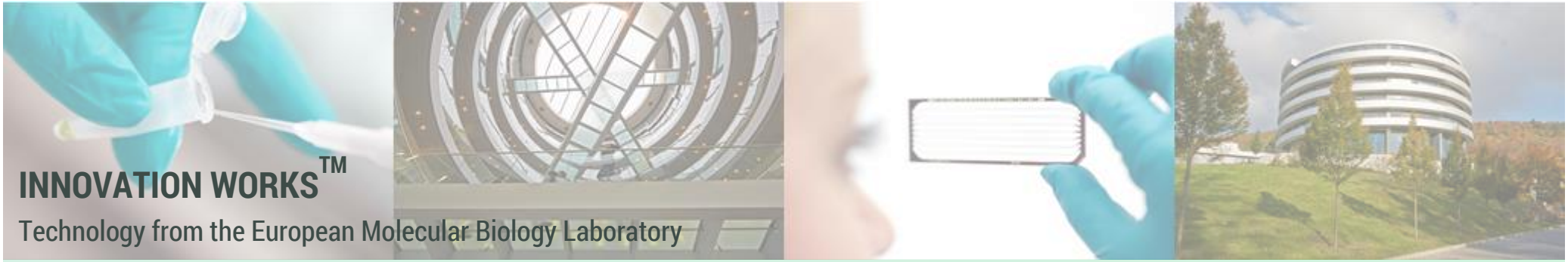

INNOVATION WORKS™

Technology from the European Molecular Biology Laboratory

Ultrafast, highly sensitive, fluorescent, in-gel protein stain

EMBLEM Ref. HDU-67

Challenge

- visualise proteins in SDS-PAGE gels
- keep handling time as short as possible
- achieve a sensitivity as high as possible

Commercial Opportunity

- we are searching for a licensee and distribution partner to realize the market potential of our stain
- we offer access to know-how, data, synthesis protocols and material
- we offer support in expanding the product range

Technology

- loading and detection stain in one product
- in-gel monitoring during electrophoresis
- fluorescence detection after electrophoresis
- sensitivity comparable to silver staining (1ng of protein)
- eligible for western blotting
- suitable for automation

Contact

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Intellectual Property

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EMBLEM TECHNOLOGY TRANSFER

Ultrafast, highly sensitive, fluorescent, in-gel protein stain

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SDS-PAGE has been a classic in molecular biology research for decades. With the advance of proteomics in biomedical and pharmacological research, it remains state-of-the-art and faces a constant demand for tools that improve efficiency and throughput. The crucial step is the visualisation of the protein bands in the gel.

Besides the traditional Coomassie staining, also silver staining, fluorescent stains, and recently real time stains are on the market. However, each of those methods has their limitations, either low sensitivity, long preparation time, or no live-monitoring.
Here we present a technology that combines the advantages of all stains currently in use, and at the same time overcomes their limitations.

The dye is applied during sample preparation and also serves as the loading buffer. The easy protocol, consisting of only one step makes our stain perfectly suitable for automation.
This "loading stain" allows for real-time monitoring of sample separation during the entire gel electrophoresis. After sufficient separation the gel can immediately be analysed with standard UV, laser or filter based imaging equipment without any further steps required.

The stain is compatible with commonly used preparation methods, buffers and reagents. Since there are no further steps (washing/fixing/staining) after electrophoresis, results can be obtained within as little as 50 minutes, including sample preparation, gel run and imaging, which saves around 4 hours compared to standard methods. The loading stain is highly sensitive and detects 1ng of protein (as sensitive as silver and other high-sensitivity stains) with a linear dynamic over four orders of magnitude. It reacts with various amino acids and its efficiency is independent of protein chemistry. It reveals the same band patterns as Coomassie.

Furthermore, gels can be fixed with formaldehyde after electrophoresis, and stored in the fridge up to 4 weeks for (re-)analysis with constant fluorescence intensity, which adds to our stain's convenience. Gels stained with our loading stain are eligible for western blotting.

Its chemical synthesis is straightforward and the raw substance is a powder that is resistant to degradation when stored in the dark at room temperature. For laboratory use it can be kept in thiol-free buffer for at least one year at -20°C and for at least 4 weeks at room temperature.

The stain's high stability at room temperature, both as powder and in solution, renders it very suitable for shipping.

The stain’s versatile chemistry offers the opportunity to design a range of products with a variety of fluorescent or non-fluorescent dye moieties added to the designed linker.