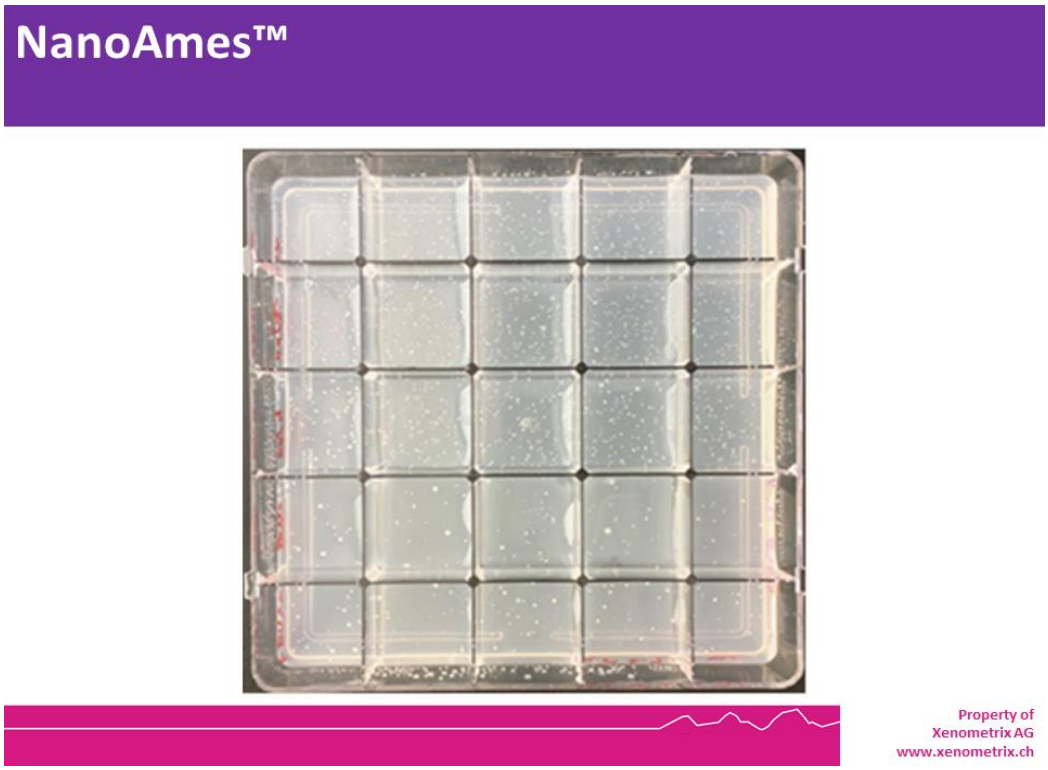
Ultraminiaturized NanoAmes™ – Assay Description

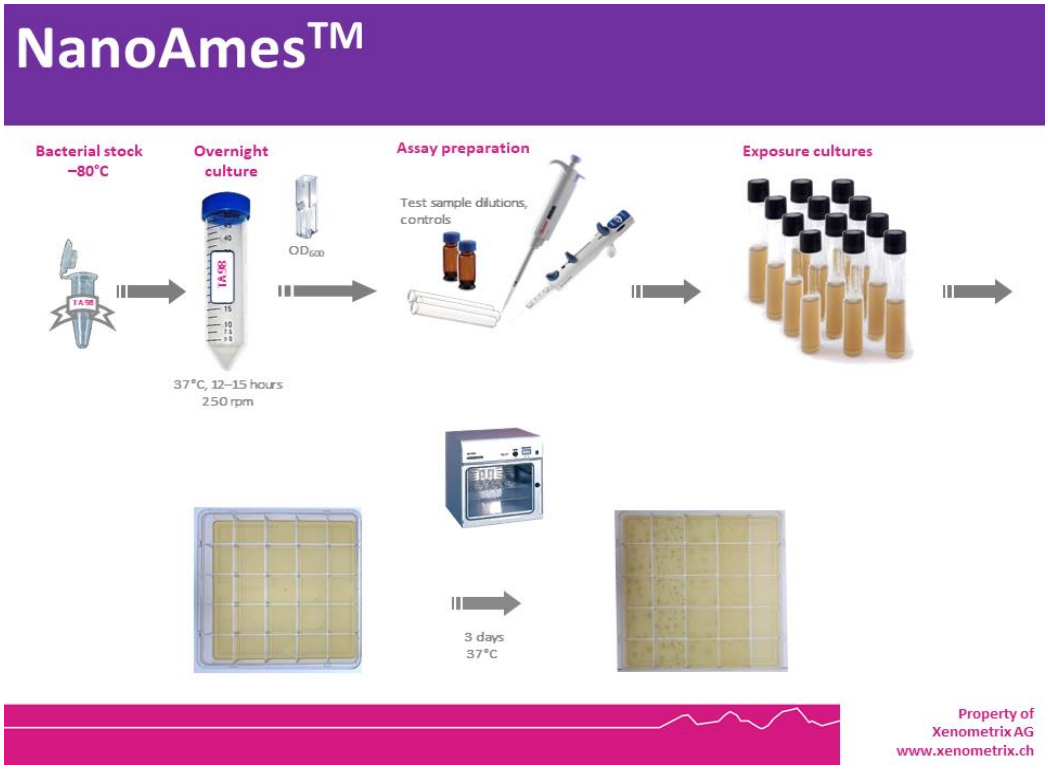
Bacteria are exposed to different and ultralow concentrations (< 45 µg) of a test sample or a mixture, as well as a positive and a negative control in a medium containing limited quantities of histidine (*S. typhimurium*) or tryptophan (*E. coli*) to support approximately two cell divisions. After exposure, the cultures in each condition (negative control, test samples and positive controls) are poured on an agar support in multiwell plates (25 -well plates). Reducing the surface area (comparatively to a regular 12 cm Petri dish) and adjusting the protocol, the amount of test sample needed to run the test is dramatically reduced, while keeping similar limits of detection.



Within three days, cells that have undergone reversion to amino acid prototrophy will grow and form colonies. In the ultraminiaturized Ames format NanoAmes (service analytics available, kit in development) and NanoAmes MPF (kit in development), revertant bacteria will form colonies, whose counts will be compared to those grown in the solvent (negative) control wells. Each dose is tested in quintuplicates to allow for statistical analysis of the data.

A dose-dependent and significant increase in the number of revertant colonies upon exposure to test sample relative to the solvent controls indicates that the sample is mutagenic.

The mutagenic potential of samples is assessed directly and in the presence of metabolic activation, provided by a liver homogenate, S9.



Miniaturized Ames Test – References

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- Burke DA, Wedd DJ, Burlinson B. 1996. Use of the Miniscreen assay to screen novel compounds for bacterial mutagenicity in the pharmaceutical industry. *Mutagenesis*. **11**(2):201–5.
- Flamand N, Meunier J, Meunier P, Agapakis-Caussé C. 2001. Mini mutagenicity test: a miniaturized version of the Ames test used in a prescreening assay for point mutagenesis assessment. *Toxicol In Vitro*. **15**(2):105–14.
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