

GentleLys - Native Cell Lysis Buffer - Dissolve & Stabilize

References

„The bigger picture: global analysis of solubilization performance of classical detergents versus new synthetic polymers utilizing shotgun proteomics“

S Mueller, J Kubicek, F Merino, P Hanisch, B Maertens, JW Lackmann
 doi: <https://doi.org/10.1101/2023.07.11.548597>

Benefits and Features

- 100% detergent-free, non-denaturing solution
- Lysis of cultured cells from plate cultures as well as cell pellets from suspension cultures
- Extraction of soluble proteins and stabilization of membrane proteins from all compartments of insect cells, mammalian cells, and viruses
- Compatibility with many applications, including Immunoassays, Protein Assays, Mass Spectrometry, and Protein Purification

“GentleLys – Dissolve” lyses cells in 15 min

“GentleLys – Stabilize” lyses all cells and makes the whole proteome (soluble and membrane proteins) of the cell available for your analytic approaches in 2 hours

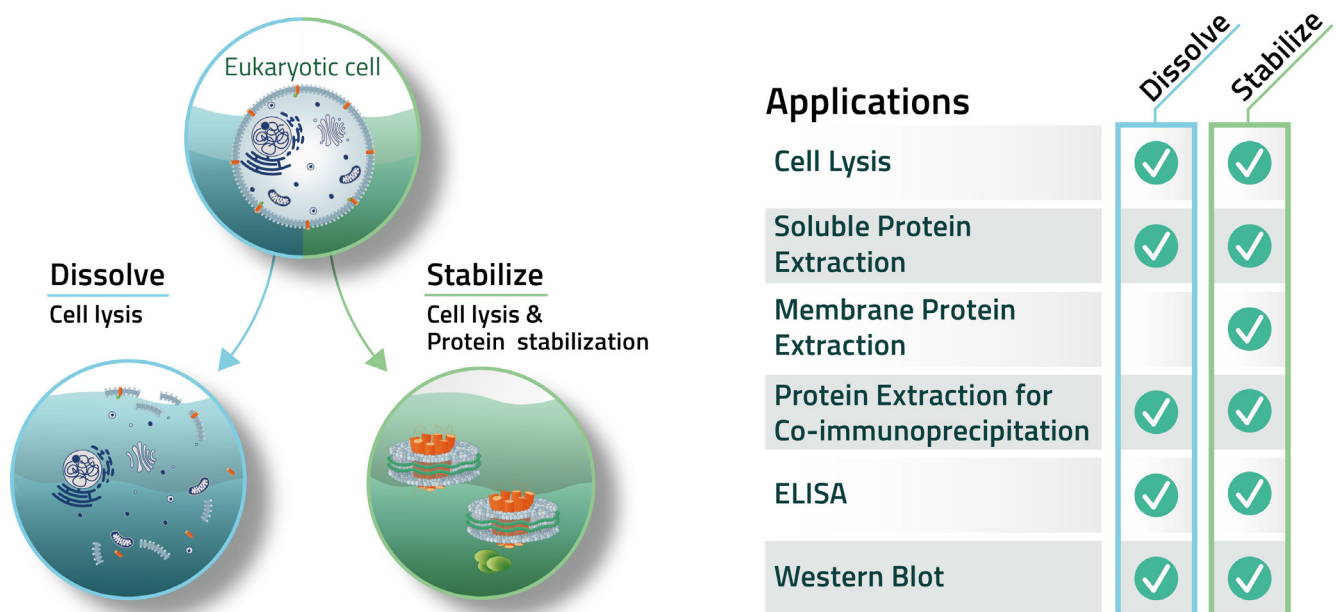


Figure 1: Overview of both types of the GentleLys types. They can both be used for almost the same applications. The only difference is that GentleLys Dissolve cannot stabilize membrane proteins, while GentleLys Stabilize is able to do that.

Lab Results

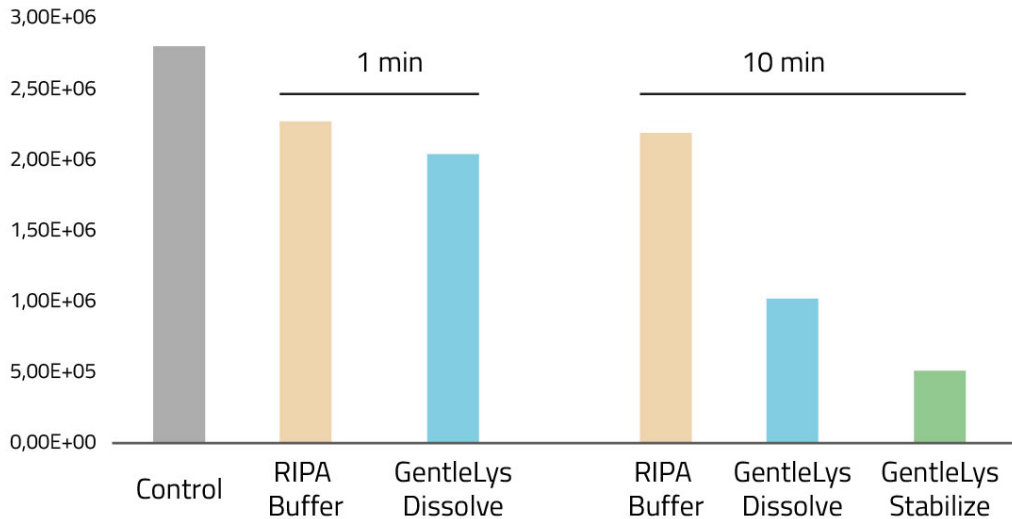


Figure 2: Total number of countable cells after 1 min / 10 min treatment with either RIPA buffer, GentleLys – Dissolve / GentleLys - Stabilize or control buffer. Lower cell count equals fully lysed cells. The fewer cells are countable the more sufficient the cell lysis takes place (no organelles detectable). Note that there is no graph for GentleLys - Stabilize after 1 minute of treatment. This is because we recommend this treatment for at least 15 minutes.

HEK293 cells

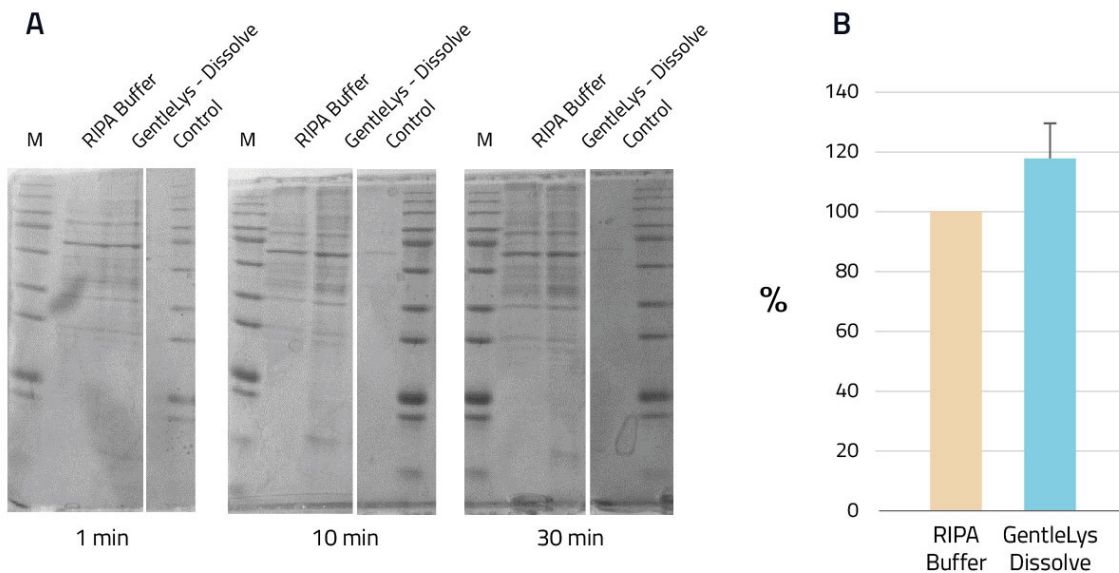


Figure 3: A SDS PAGE analysis of HEK293 cell supernatant after 1 min / 10 min / 30 min treatment with either RIPA buffer, GentleLys – Dissolve, or control buffer. After incubation intact cells and cell debris were centrifuged and equal volumes of supernatant were run via SDS PAGE and detected via Coomassie staining.

B Quantification of accumulated data is shown. The intensity of individual band patterns has been measured. With GentleLys a ~20% increased protein amount can be identified via SDS PAGE band analysis. RIPA has been set to 100%.

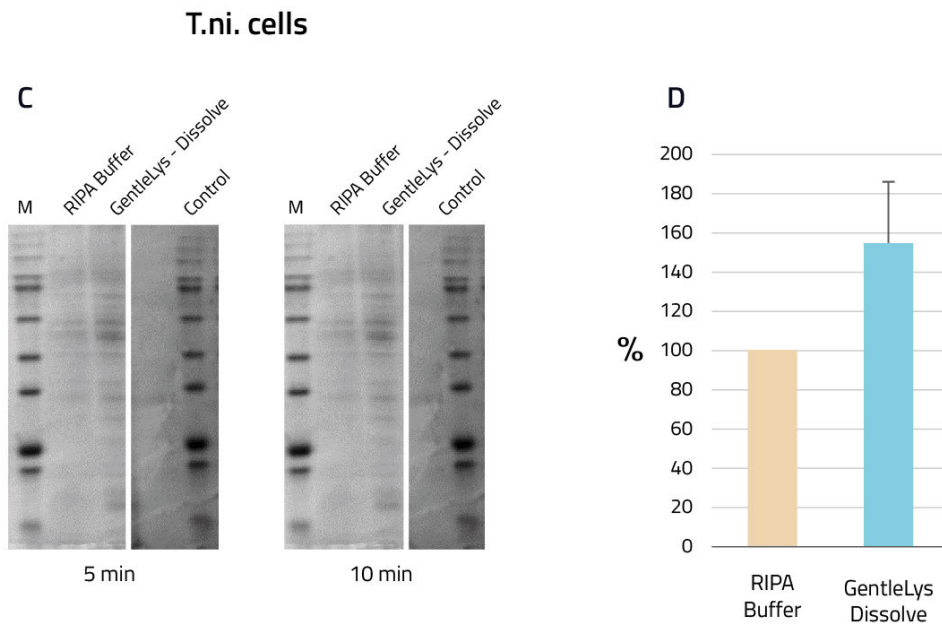


Figure 4: C SDS PAGE analysis of T.ni. cell supernatant after 5 min / 10 min treatment with either RIPA buffer, GentleLys – Dissolve, or control buffer. After incubation intact cells and cell debris were centrifuged and equal volumes of supernatant were run via SDS PAGE and detected via Coomassie staining.

D Quantification of accumulated data shown in 4. The intensity of individual band patterns has been measured. With GentleLys a ~50% increased protein amount can be identified via SDS PAGE band analysis. RIPA has been set to 100%.

FAQ

<p>Why should I use this buffer instead of the RIPA buffer?</p>	<p>There are two major reasons for that:</p> <ol style="list-style-type: none"> 1. The GentleLys buffer keeps the native folding of your proteins intact. (Hence the name „Gentle“). The RIPA buffer is denaturing and does not do that. 2. The RIPA buffer uses detergents, while the GentleLys buffer uses copolymers. Detergents do not allow for protein-ELISAs as a follow-up assay. Copolymers do not have this limitation.
<p>What other assay can samples created through the GentleLys buffer be used for?</p>	<p>There are numerous applications for samples obtained through the use of the GentleLys buffers. These include Immunoassays, Protein Assays, Mass Spectrometry, and Protein Purification.</p>
<p>What cell types can the GentleLys Buffer be used for?</p>	<p>The buffer is primarily meant to be used for insect cells and mammalian cells. Bacterial cells and plant cells do not work due to the cell wall.</p>
<p>Can I use the Stabilize Buffer also to simply dissolve my cells like the Dissolve Buffer does?</p>	<p>Both Buffer variants are capable of dissolving the cells. However, only the Stabilize Buffer is capable of stabilizing the membrane proteins.</p>
<p>How does the membrane protein stabilization of the GentleLys Buffer work?</p>	<p>Through the use of our specially engineered copolymer. Find more information here: https://cube-biotech.com/knowledge/membrane-protein-stabilization/synthetic-polymer-nanodiscs/</p>



Product	Catalog No.	Package size
GentleLys - Native Cell Lysis Buffer - Stabilize	18906	100 ml
	18907	250 ml
GentleLys - Native Cell Lysis Buffer - Dissolve	18806	100 ml
	18807	250 ml