



ArcticZymes  
Technologies

# Salt Active Nucleases

## For Bioprocessing

Cell and gene therapies and viral vector-based vaccines are currently among the most promising therapeutic areas. In these therapies, engineered viruses are commonly used as vectors to deliver and insert genetic material into cells to treat or prevent disease. Among the most promising tools are vectors based on adenoviruses, adeno-associated viruses (AAVs) and lentiviruses. To drive clinical studies and commercialisation, the development of scalable, robust and high-yielding manufacturing methods for these vectors remains a key challenge for the industry.



Superior activity at  
high salt conditions

## SAN High Quality

### Bioprocessing grade



High purity ( ≥ 98%)

SAN High Quality is the ultimate solution for efficient removal of nucleic acids in high-salt manufacturing and bioprocessing workflows. This nonspecific endonuclease has optimum activity at salt concentrations between 400 – 650 mM.

#### SAN High Quality has optimal activity at high-salt

Salt is an important component in many purification processes. The presence of salt can reduce aggregation, increase target solubility, and improve target yield. High-salt enables contaminating DNA to dissociate from associated proteins and become available for degradation. SAN High Quality is highly compatible with the use of high-salt conditions, which in many cases allows for significant improvements in efficiency and yield.



Active at low  
temperatures



Compatible with  
SAN HQ ELISA

# Application: DNA removal in high-salt lysates

SAN High Quality is ideally suited for DNA removal in mammalian cell lysates and supernatants supplemented with salt (Fig 2). In this case, HEK 293 cells were grown in DMEM for 48 hrs before lysis and nuclease treatment at high salt (50 U/ml nuclease, 500 mM NaCl, 5 mM Mg<sup>2+</sup>). Remaining DNA after 1 hr incubation at 37°C was quantified using Quant-iT™ PicoGreen™ dsDNA Assay Kit.

## Ideal for high-salt lysates

By taking advantage of the superb activity of SAN HQ in combination with the increased availability of DNA at high-salt concentrations, highly effective DNA clearance can be achieved early in the downstream process. In this case a more than 20-fold reduction in residual DNA was achieved. The other tested nucleases showed inferior performance relative to SAN HQ at the tested conditions.

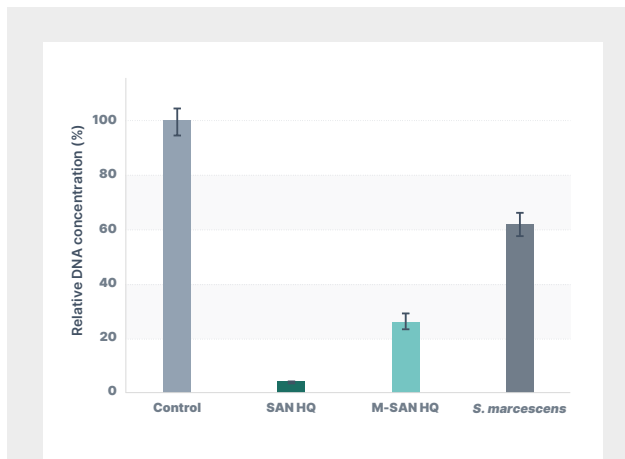


Fig 2. SAN HQ is ideal for treatment of high-salt lysates and supernatants

SAN HQ outperforms other nucleases in removal of host-cell DNA from HEK 293 cells in high-salt lysis buffers.

## Properties

<b>Source</b>	Recombinantly produced in <i>Pichia pastoris</i>
<b>Molecular weight</b>	The protein is glycosylated. Protein size without glycosylation is 26 kDa.
<b>Protein purity</b>	≥ 98% by SDS-PAGE analysis
<b>Isoelectric point</b>	9.55
<b>Unit definition</b>	One unit is defined as the amount of enzyme that causes a ΔA260 = 1.0 in 30 minutes at 37°C in 25 mM Tris-HCl pH 8.5 (@25°C), 5 mM MgCl <sub>2</sub> , 500 mM NaCl, and 50 µg/ml calf thymus DNA.

<b>Specificity</b>	Nonspecific endonuclease cleaving single and double stranded DNA and RNA.
<b>Working ranges</b>	<ul style="list-style-type: none"> <li>Temperature: 7 – 38°C, 4°C overnight, optimal: 30 – 38°C</li> <li>Salt concentration (NaCl / KCl): 100 – 900 mM, optimal: 400 – 650 mM</li> <li>Mg<sup>2+</sup>: &gt;1 mM is required for activity, optimal: 5 – 50 mM</li> <li>pH: 7.3 – 9.2, optimal: 8.2 – 8.8</li> </ul> <p>Note: The working range is defined as above 10% activity and optimal range as above 80% activity.</p>
<b>Tolerance to typical buffer additives</b>	<ul style="list-style-type: none"> <li>Imidazole: 20% activity at 350 mM Imidazole</li> <li>Glycerol: 20% activity at 35% Glycerol</li> <li>Triton X-100: No reduction in activity (tested up to 15%)</li> <li>SDS: Not recommended</li> <li>Urea: Not recommended</li> <li>Reducing agents (e.g. DTT, TCEP): will result in inactivation</li> </ul>

	Thomas No. / Article no.	Pack size	Concentration
<b>SAN HQ</b>	<b>CHM03X102</b> / 70920-202	25 kU	25 - 30 U/µl
	70920-150	500 kU	≥ 250 U/µl
	70920-160	5 MU	≥ 250 U/µl
	70920-100	Custom	Custom
<b>SAN HQ Triton FREE</b>	<b>CHM03X103</b> / 70921-202	25 kU	25 - 30 U/µl
	70921-150	500 kU	≥ 250 U/µl
	70921-160	5 MU	≥ 250 U/µl
	70921-100	Custom	Custom
<b>SAN HQ 2.0 ELISA</b>	<b>CHM03W717</b> / 70970-001	1 x 96 Well Plate	N/A
<b>M-SAN HQ</b>	<b>CHM03W715</b> / 70950-202	25 kU	25 - 30 U/µl
	70950-120	200 kU	≥ 250 U/µl
	70950-150	500 kU	≥ 250 U/µl
	70950-155	1 MU	≥ 250 U/µl
	70950-160	5 MU	≥ 250 U/µl
	70950-100	Custom	Custom
<b>M-SAN HQ ELISA</b>	<b>CHM03W716</b> / 70960-001	12 x 8 Strip Plate	N/A