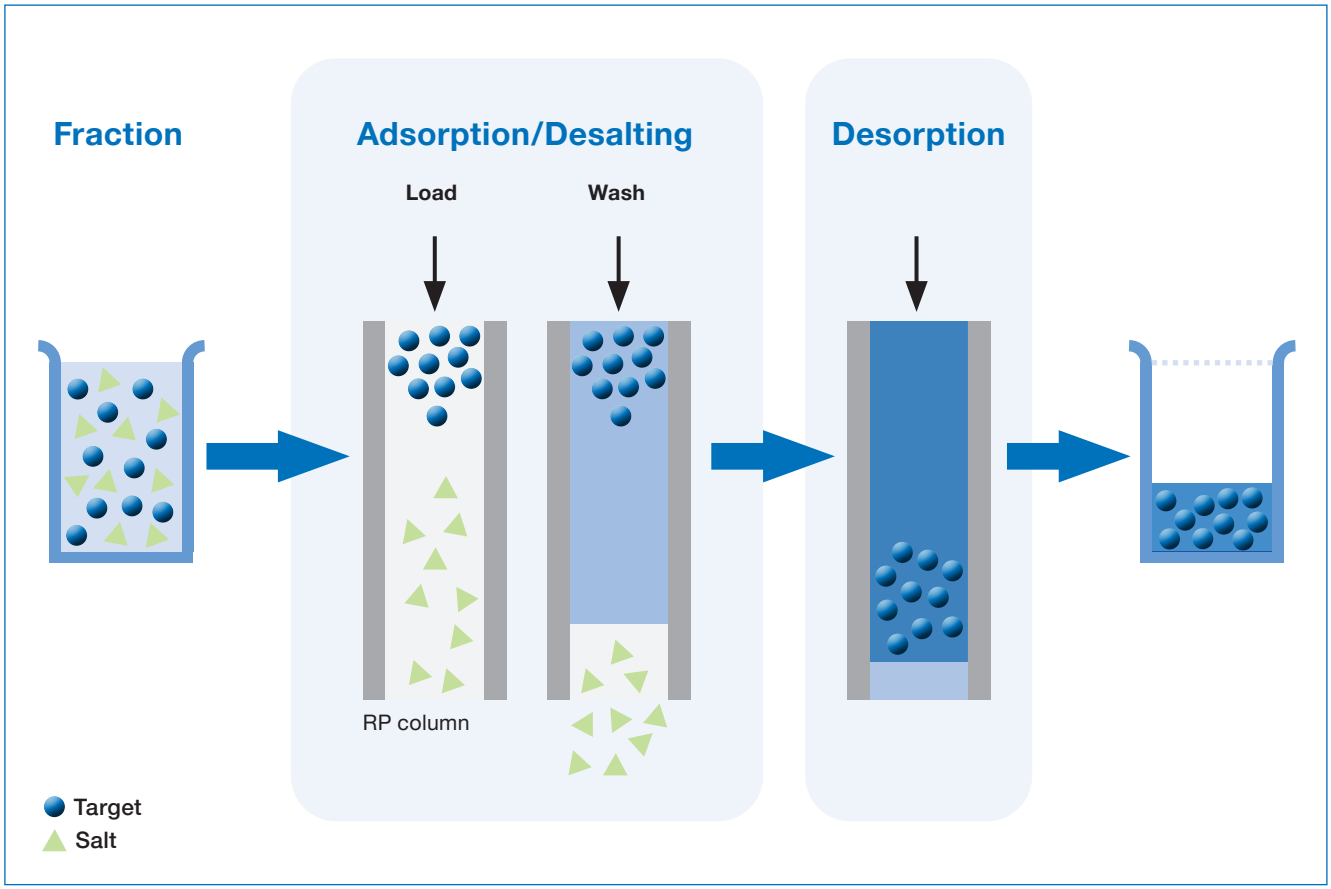
Desalting/Resalting using a RP column

Efficient peptide and oligonucleotide purification can be performed quite readily. It requires a reversed phase stationary phase in combination with a buffer-containing eluent. The increase in ionic strength by means of salts enables peptides, oligonucleotides, etc. to interact with the stationary phase. However, buffers are mostly unwanted in the final product.

In order to remove the salts from the collected fractions after the purification run, the use of a RP column is a convenient option. The use of the same column for both the separation and the resulting desalting step saves investment costs and lowers the footprint of the process. A big advantage can be a stationary phase which retains the target molecule under preferably 100% aqueous conditions.

This will allow a cost-efficient desalting process as post-treatment after the purification run to be applied. The positive effects of this approach even increase with the actual scale of the preparative purification process. Therefore, it's especially suitable for large scale processes. Due to the positive side effects of a smaller fraction volume and an increased ratio of volatile organic solvents, all consecutive steps for the overall production process are simplified as well.

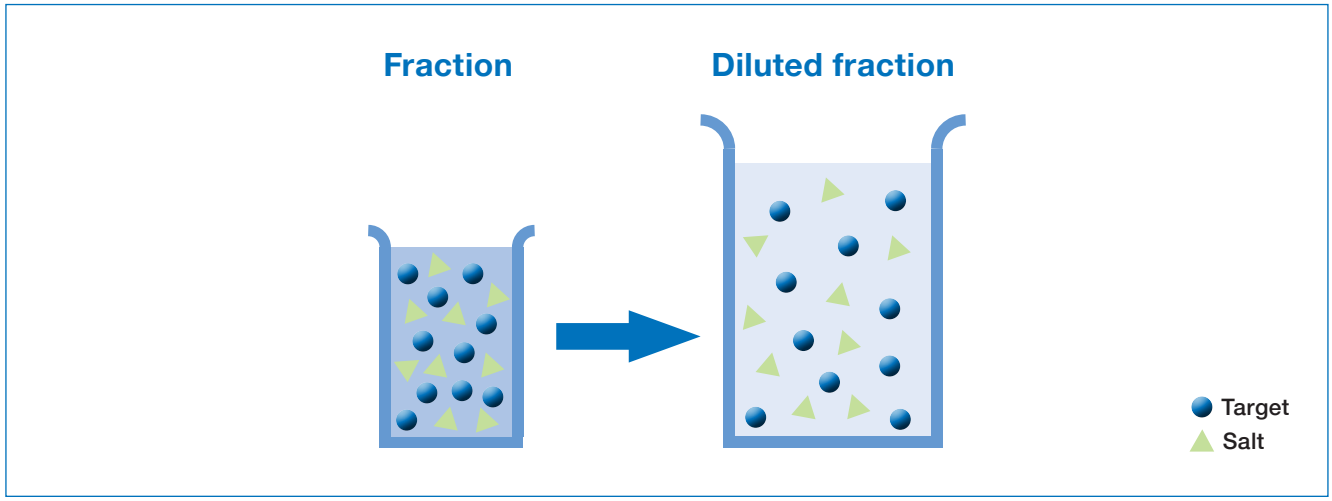
Another case is where a specific counter ion is required for the target molecule but the corresponding buffer is not suitable for the actual separation process. The change of the counter ion can be done via the same procedure by replacing the washing solution with a buffer with the counter ion of interest.



Step-by-step procedure

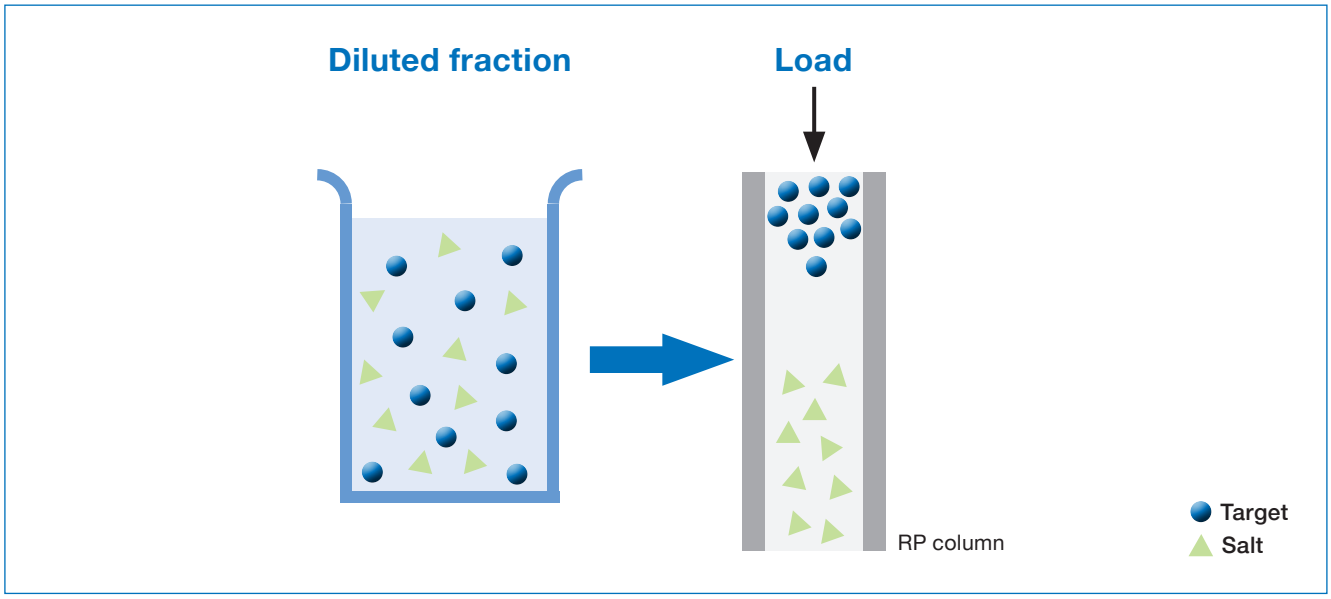
1. Dilution of collected fraction

In order to increase the retention of the target molecules, the collected fraction should be diluted. This results in the elution strength of the fraction solvent being reduced which allows the target molecules to be trapped on the RP column.



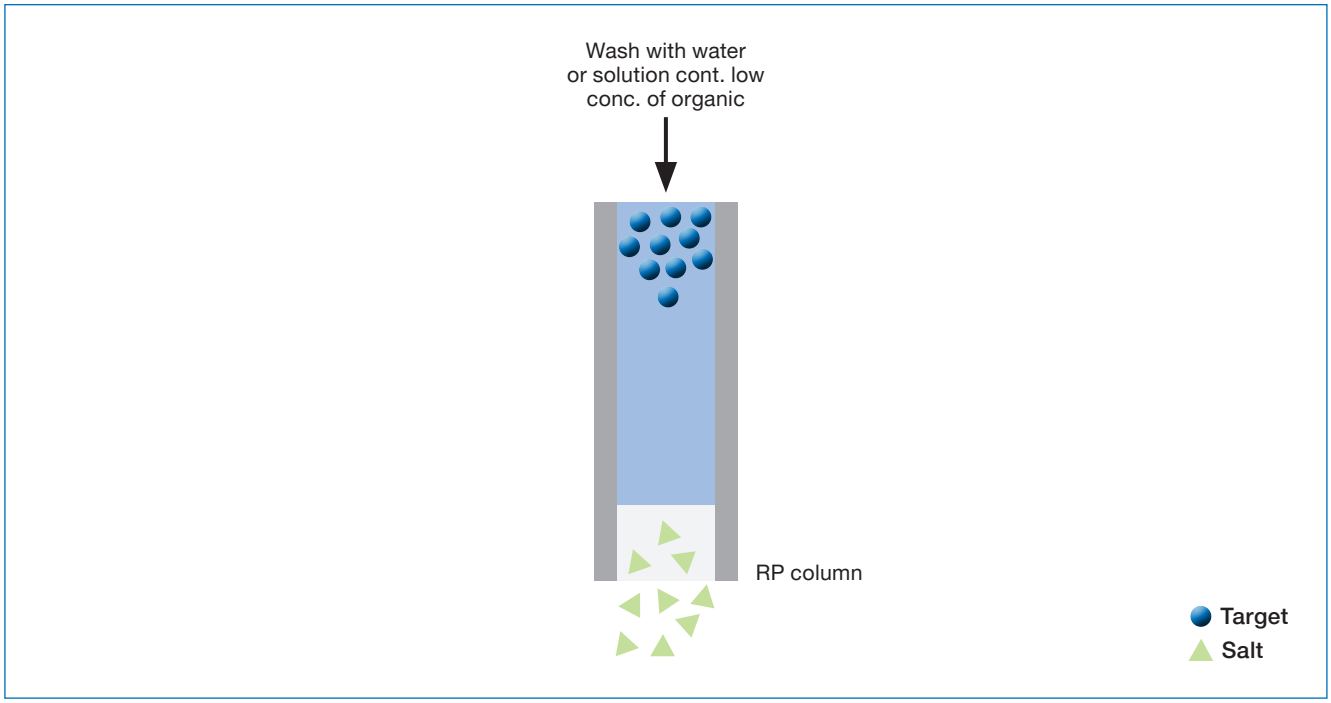
2. Loading

The diluted fraction can now be loaded onto the preparative column. The target molecules are trapped at the beginning of the chromatography bed.



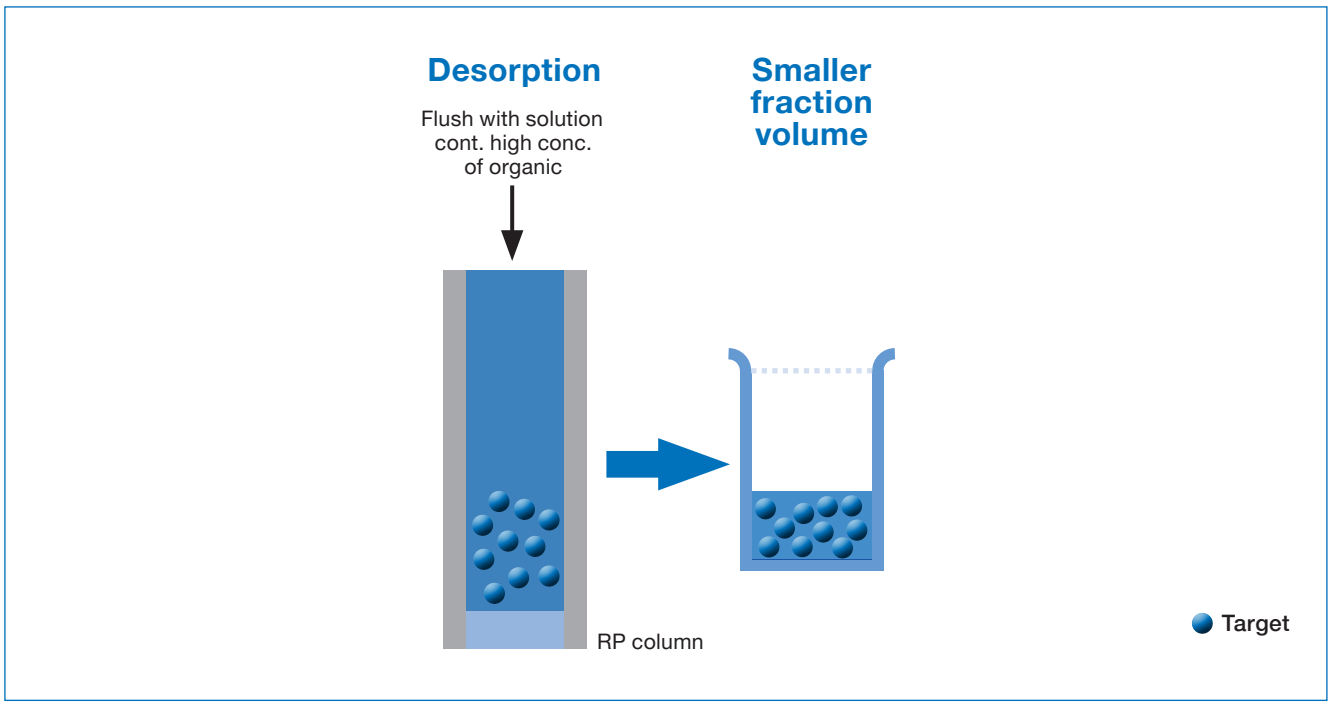
3. Wash

Wash the column using a solution of 100% water or with a low concentration of organic solvents. For resalting, the buffer solution with the counter ion of interest has to be used.



4. Desorption

Now, the trapped target molecules can be eluted by using a solution with a high concentration of an organic solvent. This results in the target being eluted in a high local concentration leading to a reduced fraction volume.



How to choose a suitable RP phase?

The basic requirement for this desalting approach is the effective retention of the target molecules on the RP column. The stationary phase used ideally needs to be compatible with 100% aqueous conditions. Due to the low elution strength of water as mobile phase this desalting procedure can then be applied for most peptides and oligonucleotides.

Therefore, YMC-Triart Prep C18-S is the ideal stationary phase for the desalting procedure described. The selectivity is perfectly suited for the purification of peptides, oligonucleotides and other biomolecules. This desalting procedure can be applied on the industrial scale with YMC-Triart Prep.

The hybrid-silica base material also allows the use of alkaline cleaning procedures. This can result in a significant increase in the actual lifetime of the stationary phase which improves the overall cost-efficiency of the production of new API's. Based on the chemical nature of the target compounds, other YMC selectivities may also be possible options for this desalting approach.

Specifications

	YMC-Triart Prep C18-S	YMC-Triart Prep C8-S	YMC-Triart Prep Bio200 C8	YMC-Triart Prep Phenyl-S
Base material	inorganic / organic hybrid silica			
Particle size [µm]	7, 10, 15, 20	10, 15, 20	10	10
Pore size [nm]	12	12	20	12
Specific surface area [m^2/g]	360	360	proprietary	360
Bonding	trifunctional C18	trifunctional C8	trifunctional C8	trifunctional Phenyl
End-capping	yes	yes	yes	yes
Flexible pH range	2.0 ~ 10.0	2.0 ~ 10.0	2.0 ~ 10.0	2.0 ~ 10.0
Column cleaning	common procedures up to pH 12	common procedures up to pH 12	common procedures up to pH 12	common procedures up to pH 12

Order Information

YMC-Triart Prep C18-S			YMC-Triart Prep C8-S		
Pore size [nm]	**Particle size** [µm]	**Product Code**	**Pore size** [nm]	**Particle size** [µm]	**Product Code**
12	7	TAS12S07	12	10	TOS12S11
	10	TAS12S11		15	TOS12S16
	15	TAS12S16		20	TOS12S21
	20	TAS12S21			

YMC-Triart Prep Bio200 C8			YMC-Triart Prep Phenyl-S		
Pore size [nm]	**Particle size** [µm]	**Product Code**	**Pore size** [nm]	**Particle size** [µm]	**Product Code**
20	10	TOB20S11	12	10	TPS12S11

More information about the benefits of the YMC-Triart Prep materials can be found on the YMC website www.ymc.eu or please just get in touch with your YMC representative.