

Biochemicals – Sample Cleanup

In order to facilitate analysis of biochemical samples (peptides, proteins, oligonucleotides *etc.*) it is necessary to remove, prior to submission, any contaminants that may be present. Contaminants are often products of sample extraction and isolation procedures, such as buffers, salts and detergents. There are three main methods for removing contaminants.

1. Drop dialysis (floating membrane): Use this technique on polar compounds when you know contaminants are of low molecular weight. This technique works well for DNA and polar proteins such as glycoproteins.
See [Drop dialysis information](#) for full procedure.
2. Cation exchange: Use this technique for non-polar proteins or DNA when you know the sample contains only a salt contaminant. This technique is faster than dialysis but does not remove other contaminants.
See Nordhoff, E. *et al. Rapid Comm. Mass Spectrom.* **1992**, 6, 771-776 or Ball, R. W.; Packman, L. C. *Analytical Biochemistry* **1997**, 246, 185-194 for full procedure.
3. ZipTips® (or equivalent): Use this technique for peptides, proteins, and oligonucleotides when you know the sample contains salt, buffer, or glycerol contaminants. This technique is faster, and more effective than dialysis for removing contaminants.
See [ZipTip information](#) for various protocols and references.

Biochemical samples are often only available in sub-microgram amounts, but we prefer that a **known weight** of dry sample be submitted. If it is necessary that samples be submitted in solution, then these should, as much as possible, be of **known concentration**. We have a storage freezer for those samples that require it, and such samples should be packed in dry ice inside polystyrene containers when submitted. Please include which sample cleanup procedures have been done in your submission, so repetition can be avoided. The post-cleanup samples should be stored and submitted in **plastic** vials, not the glass vials described in the “Important Notes” document.

When you complete the COSHH assessment on your sample submission form please include details of any biochemical/biological hazards, including any necessary handling and disposal procedures. If you are in any doubt of the level of biochemical/biological hazard please contact the Service Manager before submitting any samples.