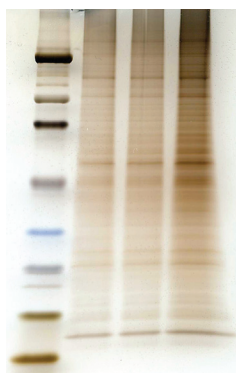


# Concentration of Dilute Protein Solutions

Protein solution may be concentrated by precipitation, chromatographic capture and elution, or by lyophilization. The following methods provide concentration of dilute protein solution.

## UPPA-PROTEIN-Concentrate™

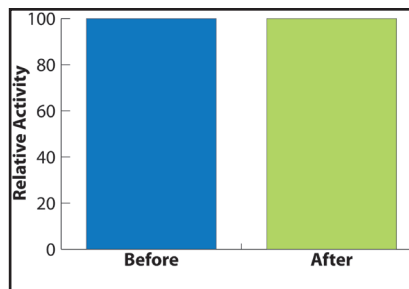
For Rapid Precipitation and Concentration Protein solutions, as dilute as 1ng/ml, can be quantitatively concentrated into a small volume. Protein concentration is not affected by the presence of common laboratory agents. The method involves mixing the protein solution with UPPA™ reagents that quantitatively precipitates protein. The precipitate is washed and suspended in a small volume of a suitable buffer. Recovery is generally >98%.



**Fig.1 Concentration of a fraction containing mouse liver extract.** Lane 1: Protein Marker; Lane 2: 20µl dilute protein (0.05µg/µl). Lane 3: 20µl original sample treated with UPPA-PROTEIN-Concentrate™ and resuspended in 20µl. Lane 4: 40µl original sample treated with UPPA-PROTEIN-Concentrate™ and resuspended in 20µl. Comparing lanes 2 and 3 shows that there is 100% protein recovery and lane 4 shows the actual concentration of a sample.

## OrgoSol-PROTEIN-Concentrate™

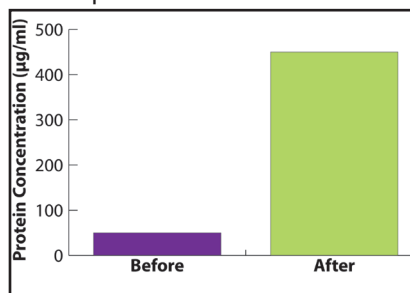
Suitable for those proteins that lose their biological activity when precipitated, such as enzymatic proteins. This kit uses OrgoSol Buffer - a proprietary solvent buffer for rapid and non-denaturing precipitation of protein. Simply mix protein solution with OrgoSol Buffer and incubate, which results in precipitation and recovery of the protein. The kit has been tested for the successful concentration of a wide selection of enzymatic proteins without the loss of biological activity. Recovery is generally 100%.



**Fig. 2 Recovery and concentration of active trypsin enzyme.** 100µl solution containing 1µg trypsin was concentrated to 10µl without any loss of activity.

## Column-PROTEIN-Concentrate™

Suitable for larger volumes of dilute protein solution or when other methods don't concentrate protein. This kit is based on chromatography immobilization and elution of protein at any pH, followed by spin-elution of the protein in a small volume of buffer. The kit has been tested for concentration of a wide variety of proteins. This method is gentle and protects protein from denaturation during the concentration process.



**Fig.3 Concentration of dilute protein solution.** 1ml dilute protein (50µg/ml) was concentrated with Column-PROTEIN-Concentrate™ to a final volume of 110µl with a concentration of 450µg/ml.

## ORDERING INFORMATION

Cat. #	Description/Size
786-120	UPPA-PROTEIN-Concentrate™ /Micro kit
786-121	UPPA-PROTEIN-Concentrate™ /Medi kit for processing up to 30ml protein solution
786-125	OrgoSol-PROTEIN-Concentrate™ for processing up to 5ml protein solution
786-126	Column-PROTEIN-Concentrate™ for processing up to 5mg protein

## REFERENCES

### OrgoSol-PROTEIN-Concentrate™

1. Olbrot, M. et al (2002) Proc Natl Acad Sci USA. 99(10): 6737

### UPPA-PROTEIN-Concentrate™

1. Singleton, D. et al (2004) Microbiol. 150: 285
2. Morisawa, G. et al (2000) Plant Cell. 12: 1903



G-Biosciences  
St Louis, MO. 63132. USA  
Phone: 1-800-628-7730  
Fax: 1-314-991-1504  
www.GBiosciences.com



**think proteins! think G-Biosciences!**