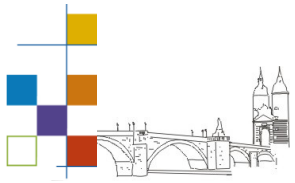
SERVA Electrophoresis

SERVA *Blue*Prep Kits

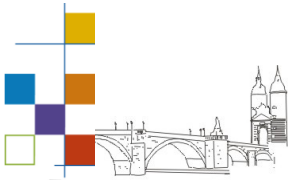
Protein and Protein/Nucleic acid Isolation and Purification



SERVA Electrophoresis

SERVA *Blue*Prep Kits

- SERVA *Blue*Prep CBD Micro/MacroKit
- SERVA *Blue*Prep DetergentEx Micro/Macro Kit
- SERVA *Blue*Prep IB Isolation Micro/Macro Kit
- Cell Lysis Reagent (lysis of bacterial cells, in order to assist in the extraction of inclusion body proteins)
- IB Solubilization Reagent
- SERVA *Blue*Prep Major Serum Protein Removal Kit
- SERVA *Blue*Prep Urine Concentration Micro/Macro Kit
- SERVA *Blue*Prep ON-Column Digest Kit
- SERVA *Blue*Prep Protein EndotoxinEx Micro/Macro Kit
- SERVA *Blue*Prep 2in1 Kit
- SERVA *Blue*prep 3in1 Kit
- SERVA *Blue*prep 4in1 Kit



SERVA
Electrophoresis

SERVA *Blue*Prep Kits

- Spin columns with ion exchange matrix
- Kit contents

  Columns

  Column activation buffer

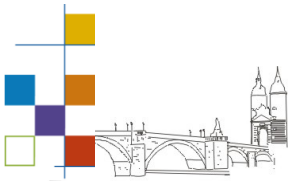
  Binding buffer for basic or acidic proteins

  Elution buffer

  Neutralizer

  Elution tubes

- pH-dependent protein elution
  (elution buffer pH should be minimum protein pI + 1)
- Alternative elution buffers can be used, please see additional information in the manual



SERVA
Electrophoresis

SERVA *Blue*Prep Kits

Flowchart

Sample preparation and pH adjustment

↓

Column activation

↓

Binding sample on column

↓

Centrifugation

↓

Wash

↓

Centrifugation

↓

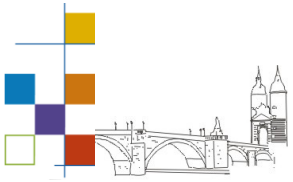
Elution

↓

Centrifugation

↓

Purified sample

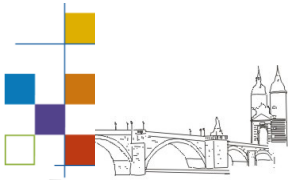


SERVA
Electrophoresis

SERVA *Blue*Prep CBD Micro/Macro Kit I

- **C**oncentration, **B**uffer exchange, **D**esalting
- No MWCO restriction
- Up to 99 % Desalting and Protein Recovery (BSA)
- Max. sample amount: Micro, 50 µg (max. 5 ml)
  Macro, 8 mg (max. 100 ml, min. 0,25 mg)
- Concentration factor: Micro up to100x
  Macro up to 25x
- Min. elution volume: Micro: 30 µl
  Macro: 4 ml
- Number of samples Micro: 10 samples
  Macro: 4 samples within 20 minutes

- Contains buffer for acidic and basic proteins, **no buffer preparation necessary**
- Sample preparation/purification for MS, SDS-PAGE, IEF, X-ray cristallography, NMR



SERVA
Electrophoresis

SERVA *Blue*Prep CBD Micro/Macro Kit II

Competitor:

Novagen:

1. ProteoExtract Protein Precipitation kit Kit, 200 x 200 µl

Disadvantages:

Preparation of buffers and solutions necessary, lower recovery rate (ca. 90 %)

Additional assay adjusting necessary when > 200 µL

Process time: min. 45 min, diluted samples: over 2 h; samples may become too dry

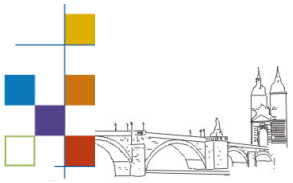
Advantage: cheaper

2. U-Tube Protein Concentrators, 25 pcs.

Disadvantages:

Different filter membranes for different MWCO and volumes necessary

Max. concentration factor 30x; clogging of the filter membrane



SERVA
Electrophoresis

SERVA *Blue*Prep CBD Micro/Macro Kit III

Competitor:

Sigma:

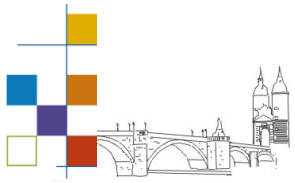
ProteoPrep Protein Precipitation Kit

Disadvantages:

Bases on TCA precipitation, therefore lower recovery and resolubilizing problems

Process time: more than 1.5 h; samples may become too dry

Advantage: cheaper



SERVA
Electrophoresis

SERVA *Blue*Prep CBD Micro/Macro Kit IV

Competitor:

GE Healthcare:

1. 2-D Clean-UP Kit, 50 samples (100 µl)

Disadvantages:

For 2DGE; sample solubilization with special rehydration buffer (for SDS PAGE a separate kit is offered)

Lower recovery (approx. 90 %), additional assay adjusting necessary for larger sample volume
Process time: more than 1.5 h; samples may become too dry

Advantage: cheaper

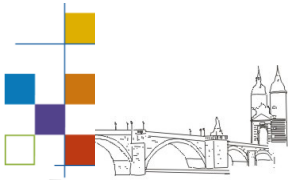
2. Vivaspin Concentrator, 500 µl – 6 ml: 25 pcs.; 20 ml: 12 pcs.

Disadvantages:

Different filter membranes for different MWCO and volumes necessary

Max. concentration factor 30x; clogging of the filter membrane

Advantage: less process steps



SERVA Electrophoresis

SERVA *Blue*Prep CBD Micro/Macro Kit V

Competitor:

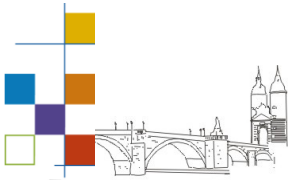
GE Healthcare:

3. PD 10 Desalting Columns, 30 pcs, PD SpinTrap Columns, 50 pcs.

Disadvantages:

Different filter membranes for different MWCO and volumes necessary

no sample concentration



SERVA
Electrophoresis

SERVA *Blue*Prep DetergentEx Micro/Macro Kit I

- Detergent removal, e.g. SDS, Triton X-100, CHAPS, NP-40, Tween 20
- Faster than dialysis
- Simultanously sample concentration
- One column for each sample avoids cross-contamination
- Up to 95 % detergent removal
- Protein Recovery: Micro, 80 - 95 %
Macro, up to100 %
- Max. sample amount/volume: Micro, 50 µg (max. 5 ml)
Macro, 8 mg (max. 100 ml, min. 0,25 mg)
- Min. elution volume: Micro: 30 µl
Macro: 4 ml
- Process time: Micro: 20 min for 12 samples, Macro: 40 min for 4 samples
- Contains buffer for acidic and basic proteins, **no buffer preparation necessary**
- Sample preparation/purification for MS, SDS-PAGE, IEF, X-ray cristallography, NMR, Proteolysis with trypsin

SERVA Electrophoresis

SERVA *Blue*Prep DetergentEx Micro/Macro Kit II

Competitor / competitive methods:

Biocat:

ProteoSpin Detergent Clean-Up Micro Kit, 25 preps , 50 preps

ProteoSpin Detergent Clean-Up Maxi Kit, 4 preps

Dialysis:

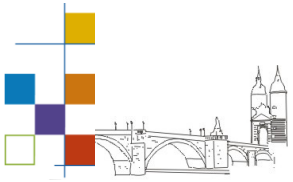
Disadvantages: Increase of sample volume, process time, difficulties in handling low sample volumes when using dialysis tubing

Advantages: cheaper (dialysis tubing)

HPLC:

Disadvantages: expensive system, availabilty in lab, process time

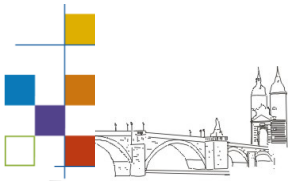
Advantages: higher purity, possibilty of sample fractionation



SERVA Electrophoresis

SERVA *Blue*Prep Protein EndotoxinEx Micro/Macro Kit I

- Removal of endotoxins from protein or peptide samples
- > 95 % recovery
- Max. sample amount: Micro: 150 µg
  Macro: 4 mg
- Max. sample volume: Micro: 450 µl
  Macro: 20 ml
- Min. elution volume: Micro: 50 µl
  Macro: 1 ml
- remaining endotoxin activity: Micro: ≤ 0,01 EU/µg protein
  Macro: ≤ 0,1 EU/µg protein
- Process time: Micro: 20 min for 10 samples, Macro: 30 min for10 samples
- Sample preparation for *in vivo* and *in vitro* applications using cells or microorganisms, generation/production of mono- or polyclonal antibodies



SERVA
Electrophoresis

SERVA *Blue*Prep Protein EndotoxinEx Micro/Macro Kit II

Competitors:

Biocat:

ProteoSpin Endotoxin Removal Micro Kit, 25 preps

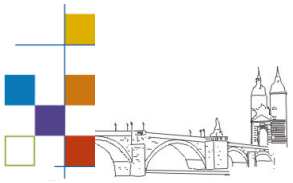
ProteoSpin Endotoxin Removal Maxi Kit, 4 preps

Sigma: Polymyxin B-Agarose, 5 ml

Profos AG: EndoTrap resin Blue und Red, 1-ml-column, re-useable for up to 50 ml (approx. 3 - 10 x)

Disadvantages: different columns for different pI , no sample concentration

Advantages: also usable for DNA, sample buffer of choice can be used

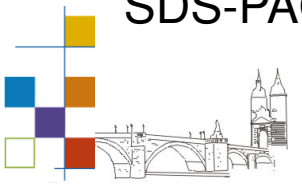


SERVA Electrophoresis

SERVA *Blue*Prep ON-Column Digest Kit I

- Trypsin digestion of complex protein samples on column with subsequent peptide isolation and purification:
  1. Column binding of protein and non-acitve trypsin
  2. Removal of salt and unspecific bound material, trypsin activation and digestion

- Rapid method compared to standard digestion and peptide purification
- Complete digestion, no artefacts in MS analysis
- **The use of one column for digestion, purification and concentration is time and money saving**
- Max. protein load: 15 µg
- Min. protein load: 2 µg
- Min. elution volume: 30 µl
- Process time : 20 min for 10 samples plus 1 h incubation
- Sample preparation/purification for mass spectrometry (LC/MS, LC/MS/MS), SDS-PAGE, MALDI-TOF

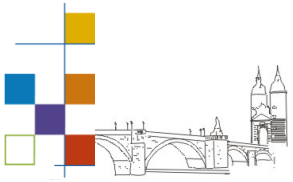


SERVA
Electrophoresis

SERVA *Blue*Prep ON-Column Digest Kit II

Competitor:

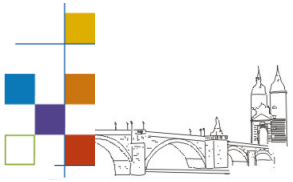
Biocat: ProteoSpin ON-Column Proteolytic Digestion Kit, 25 preps



SERVA Electrophoresis

SERVA *Blue*Prep IB Isolation Micro/Macro Kit I

- Purification of recombinant proteins from Inclusion Bodies
- For easy screening of *E. coli* clones
- 3 kits in one: lysis, solubilization, purification of recombinant protein
- Kit contains solutions and protocols for isolation of acidic and basic proteins
- Cell lysis is perfomed with non-ionic detergent and then the cells are pressed through a canula (included in the kit)
- no ultrasonic or other cell disruption methodes necessary
- > 95 % pure protein



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SERVA *Blue*Prep IB Isolation Micro/Macro Kit II

- „Enzmye-free“ procedure, therefore extended stability of the included solutions
- Max. culture volume: Micro: 1.5 ml
Macro: 100 ml
- Yield: Micro: up to 50 µg
Macro: up to 12 mg
- Min. elution volume: Micro: 30 µl
Macro: 4 ml
- Process time: Micro: 1h for 12 samples
Macro: 1 h for 1 sample
- Sample preparation for MS, SDS-PAGE, Refolding, subsequent purification steps, Scale Up

SERVA
Electrophoresis

SERVA *Blue*Prep IB Isolation Micro/Macro Kit III

Competitors:

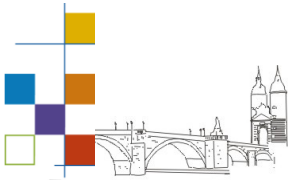
Biocat:

ProteoSpin Inclusion Body Isolation Micro Kit, 20 preps, 50 preps

ProteoSpin Inclusion Body Isolation Maxi Kit, 4 preps

Sigma: individual products , e.g. lysis buffer, enzymes

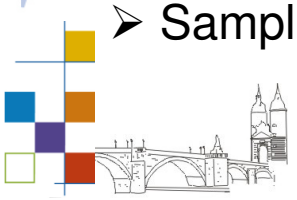
Novagen: individual products , e.g. lysis buffer, enzymes



SERVA
Electrophoresis

SERVA *Blue*Prep Urine Concentration Micro/Macro Kit I

- Desalting and concentration of diluted proteins from small amounts of urine (Identification of diagnostically important biomarkers as alternative to blood)
- Micro Kit: contains a 96-well-microtiter plate, washing and elution steps are done by vacuum application
- No MW restriction
- Max. protein recovery: Micro: 200 µg
96-well: 120 µg
Macro: 4 mg
- Max. sample volume: Micro: 1 ml
96-well: 600 µl
Macro: 20 ml
- Min. elution volume: Micro: 30 µl
96-well: 50 µl
Macro: 2 ml
- Process time: Micro: 20 min for 12 samples, 96-well: 60 min/96 samples, Macro: 45 min for 4 samples
- Sample preparation for SDS-PAGE, 2D, MS, Microarrays



SERVA Electrophoresis

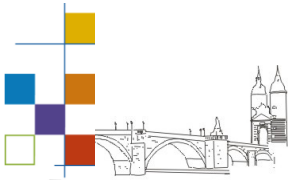
SERVA *Blue*Prep Urine Concentration Micro/Macro Kit II

Competitor:

Biocat:

ProteoSpin Urine Protein Concentration Kit, 25 preps

ProteoSpin Urine Protein Concentration Maxi Kit, 4 preps



SERVA
Electrophoresis

SERVA *Blue*Prep Major Serum Protein Removal Kit I

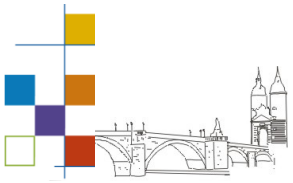
- Depletion of serum proteins without specific antibodies

  Albumin: up to 70 %

  alpha-Antitrypsin: up to 90 %

  Transferrin, Haptoglobulin: up to 50 %

- Due to the ion exchange technology use of wide variety of samples, including human and various animals
- All other systems are antibody-based: high species specificity, expensive
- Allows simultanously sample desalting
- Max. sample amount: 500 µg
- Min. sample amount: 200 µg
- Min. elution volume: 30 µl
- Process time: 30 min for 10 samples
- Sample preparation for SDS-PAGE, 2D, LC/MS, Microarrays



SERVA
Electrophoresis

SERVA *Blue*Prep Major Serum Protein Removal Kit II

Competitors:

Biocat:

ProteoSpin Abundant Serum Protein Depletion Kit, 25 preps

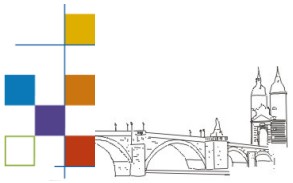
Sigma:

1. ProteoPrep Blue Albumin & IgG depletion kit, 25 preps

Disadvantages: Columns with specific antibodies, therefore species specific and expensive; no removal of Transferrin and alpha-Antitrypsin
Advantages: up to 95 % IgG and Albumin depletion

2. ProteoPrep 20 Plasma Immunodepletion Kit, 1 Kit
Disadvantages: LC Column that requires FPLC

Advantages: 97 – 98 % depletion, for 20 proteins



SERVA
Electrophoresis

SERVA *Blue*Prep Major Serum Protein Removal Kit III

Competitors:

Novagen:

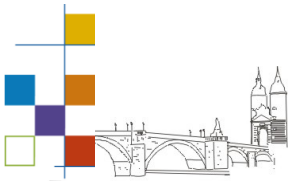
ProteoExtract Alb./IgG Removal Kit, 12 preps

Disadvantages: Columns with specific antibodies, therefore species specific and expensive; no removal of Transferrin and alpha-Antitrypsin
Advantages: up to 95 % IgG and Albumin depletion

GE Healthcare:

Albumin and IgG Removal Kit, 10 pcs

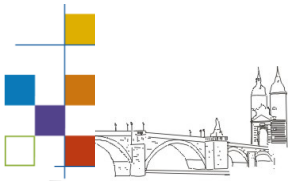
Disadvantages: Columns with specific antibodies, therefore species specific and expensive; no removal of Transferrin and alpha-Antitrypsin
Advantages: up to 95 % IgG and Albumin depletion



SERVA
Electrophoresis

SERVA *Blue*Prep 2in1 Kit I

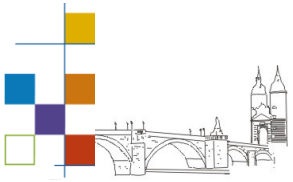
- Sequentially isolation and purification of total RNA (including micro RNA) and proteins from **ONE sample** using **ONE column**
- Suitable for cultured cells, tissue samples, blood, bacteria, yeast, fungi or plants
- RNA and proteins are derived from one sample, therefore eliminating inconsistent results
- Ideal for precious, difficult to obtain or very small samples
- Average yield (HeLa cells, 1x 10^6): 15 µg RNA, 150 µg protein
- Column binding capacity: 50 µg RNA, 200 µg protein



SERVA
Electrophoresis

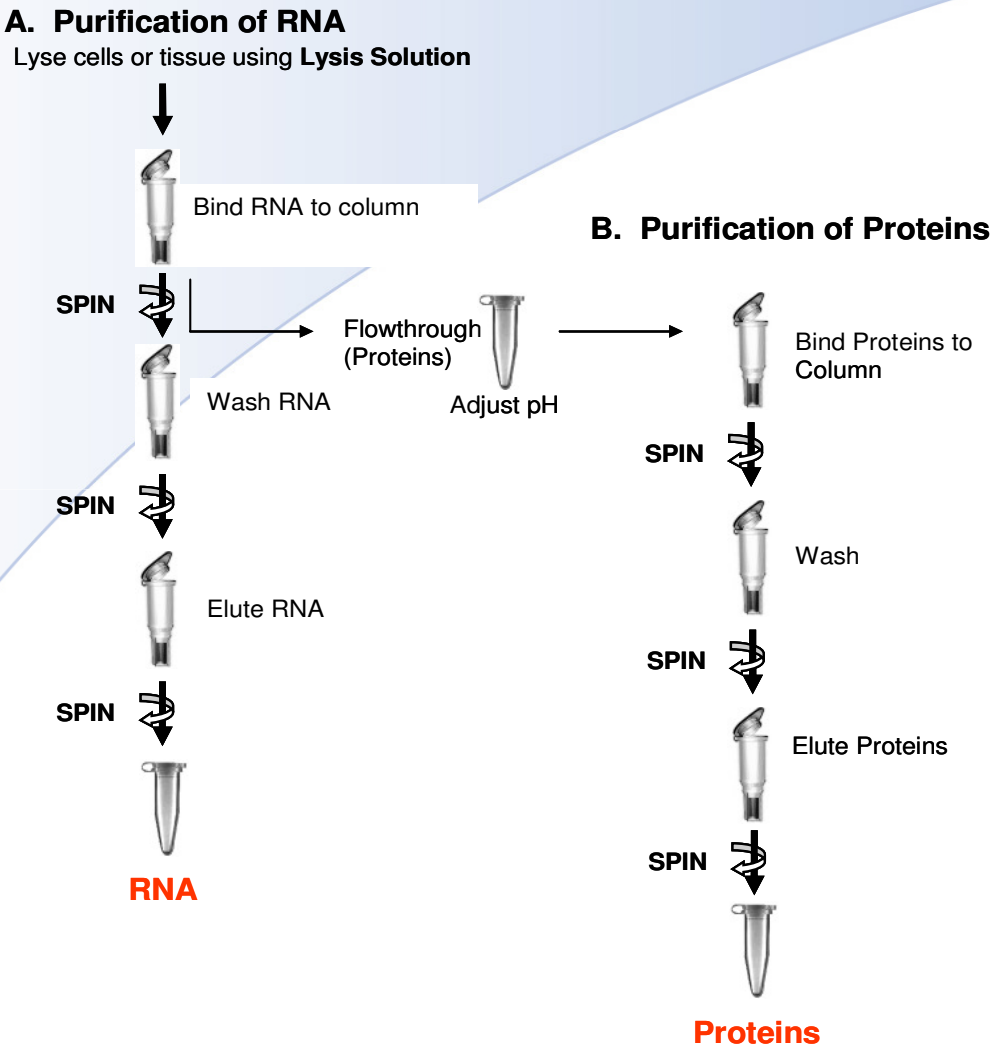
SERVA *Blue*Prep 2in1 Kit II

- RNA for RT-PCR, Real Time PCR, Northern Blots, RNAse Protection, Primer Extension, expression arrays suitable
- Purified proteins can be used for subsequent SDS-PAGE, Western Blots etc.
- Process time for RNA and protein purification : 30 min for 10 samples
- Applications: gene expression, gene silencer or mRNA knockdowns, biomarker analysis, epigenetics, characterization of cell lines



SERVA
Electrophoresis

SERVA *Blue*Prep 2in1 Kit III



SERVA Electrophoresis

SERVA *Blue*Prep 2in1 Kit IV

Competitors:

Biocat:

RNA/Protein Purification Kit, 20 preps

Novagen:

Subcellular Proteome Extraction Kit, 20 react

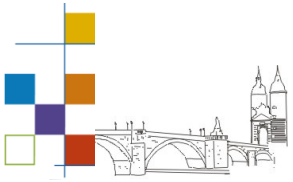
Disadvantages:

Extraction protocol has to be modified

No spin column technology, therefore precipitation

Several extraction steps necessary, process time: 2 h

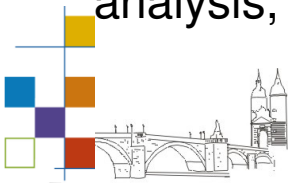
Results strongly cell type dependent



SERVA
Electrophoresis

SERVA *Blue*Prep 3in1 Kit I

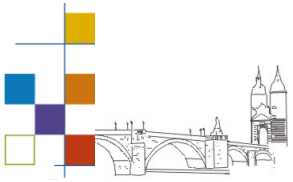
- Sequentially isolation and purification of total RNA (including micro RNA) and proteins from **ONE sample** using **ONE column**
- Suitable for cultured cells, tissue samples, blood, bacteria, yeast, fungi or plant
- RNA, genomic DNA and proteins are derived from one sample, therefore eliminating inconsistent results
- Ideal for precious, difficult to obtain or very small samples
- Average yield (HeLa cells, 1x 10^6): 15 µg RNA, 20 µg DNA, 150 µg protein
- Column binding capacity: 50 µg RNA, 8 µg DNA, 200 µg protein
- RNA suitable for RT-PCR, Real Time PCR, Northern Blots, RNAse Protection, Primer Extension, Expression arrays
- DNA suitable for PCR, sequencing, Southern Blots and SNP
- Proteins for many subsequent applications suitable, e.g. SDS-PAGE, Western Blots etc.
- Process time for RNA, DNA and protein purification: 30 min for 10 samples
- Applications: gene expression, gene silencer or mRNA Knockdowns, biomarker analysis, epigenetics, characterisation of cell lines



SERVA Electrophoresis

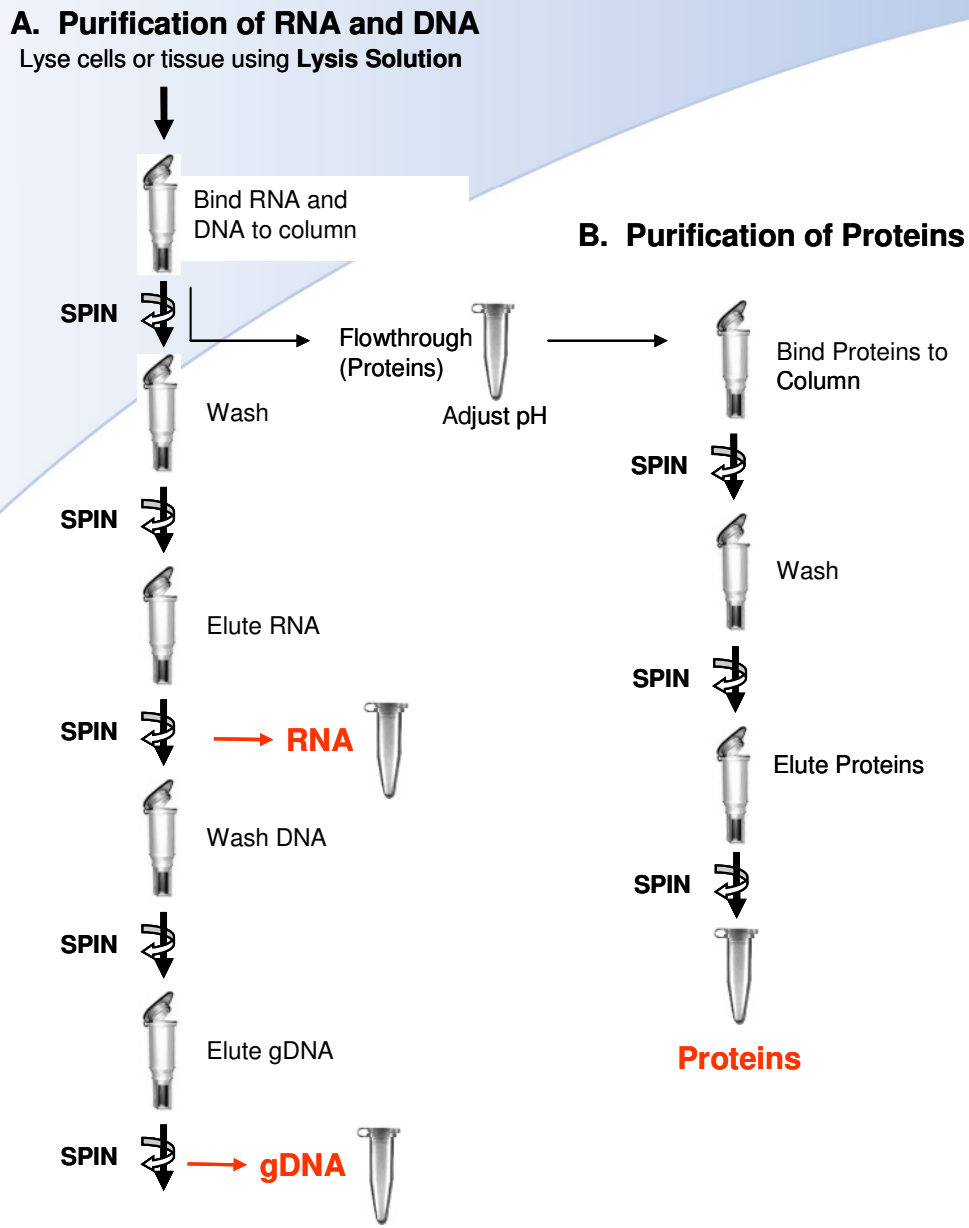
SERVA *Blue*Prep 3in1 Kit II

- Sequentially isolation and purification of total RNA (including micro RNA) and proteins from **ONE sample** using **ONE column**
- Suitable for cultured cells, tissue samples, blood, bacteria, yeast, fungi or plant
- RNA, genomic DNA and proteins are derived from one sample, therefore eliminating inconsistent results
- Ideal for precious, difficult to obtain or very small samples
- Average yield (HeLa cells, 1x 10^6): 15 µg RNA, 20 µg DNA, 150 µg protein
- Column binding capacity: 50 µg RNA, 8 µg DNA, 200 µg protein



SERVA
Electrophoresis

SERVA *Blue*Prep 3in1 Kit III



SERVA Electrophoresis

SERVA *Blue*Prep 3in1 Kit IV

Wettbewerb:

Biocat:

RNA/DNA/Protein Purification Kit, 20 preps

GE Healthcare:

Illustra triplePrep Kit, 50 preps

Disadvantages:

Process time: 45 - 60 min

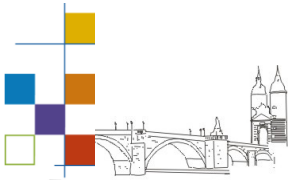
Protein purification bases on precipitation, subsequent resuspension with 2-D DIGE Puffer

Available analysis data only for mammalian tissues and cells

Low DNA yield: approx. 20 µg (12 µg SERVA *Blue*Prep 3in1 Kit)

Advantage:

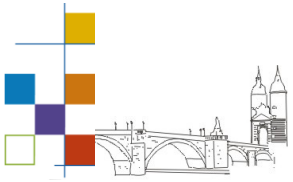
Kit contains RNase -freeDNase



SERVA
Electrophoresis

SERVA *Blue*Prep 4in1 Kit I

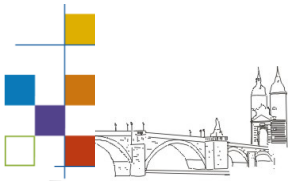
- Sequentially isolation and purification of total RNA (including micro RNA) and proteins from **ONE sample** using **ONE column**
- Suitable for cultured cells, tissue samples, blood, bacteria, yeast, fungi or plant
- RNA, genomic DNA and proteins are derived from one sample, therefore eliminating inconsistent results
- Ideal for precious, difficult to obtain or very small samples as well as mutant analysis, RNA interference, cell differentiation
- Average yield (HeLa cells, 1x 10^6): 15 µg RNA, 20 µg DNA, 150 µg protein
- Column binding capacitiy: 50 µg RNA, 8 µg DNA, 200 µg protein



SERVA
Electrophoresis

SERVA *Blue*Prep 4in1 Kit II

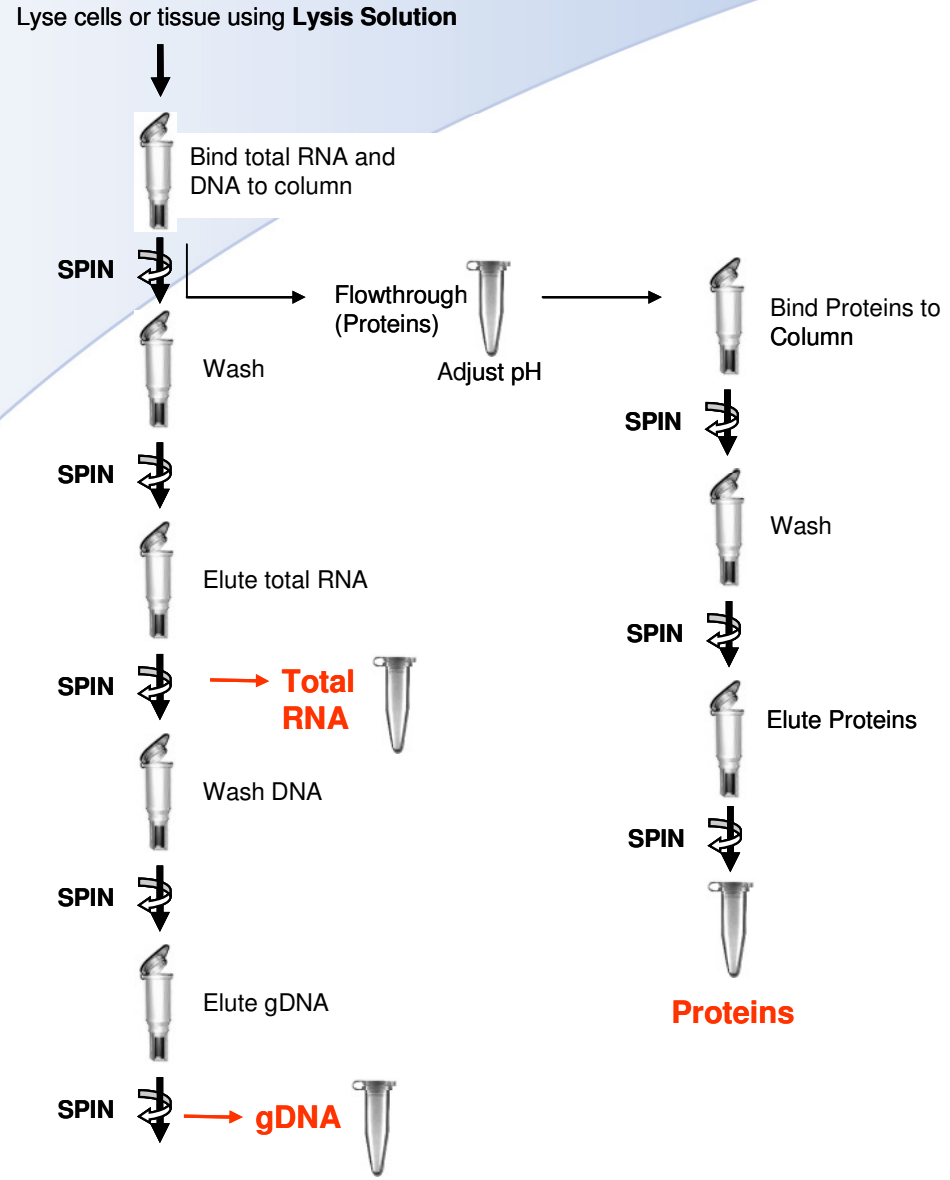
- RNA suitable for RT-PCR, Real Time PCR, Northern Blots, RNAse Protection, Primer Extension, Expression arrays
- DNA suitable for PCR, seqeuncing, Southern Blots and SNP
- Proteins suitable for SDS-PAGE, Western Blots etc.
- Process time for microRNA, large RNA, DNA and proteins: <40 min for 10 samples
- Applications: gene expression, gene silencer or mRNA Knockdowns, biomarker analysis, epigenetics, characterisation of cell lines



SERVA
Electrophoresis

SERVA *Blue*Prep 4in1 Kit III

A. Purification of Total RNA, gDNA and Proteins

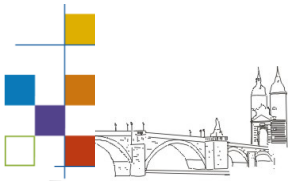


SERVA Electrophoresis

SERVA *Blue*Prep 4in1 Kit IV

Competitor:

Biocat:
RNA/DNA/Protein Purification Kit, 20 preps



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Electrophoresis