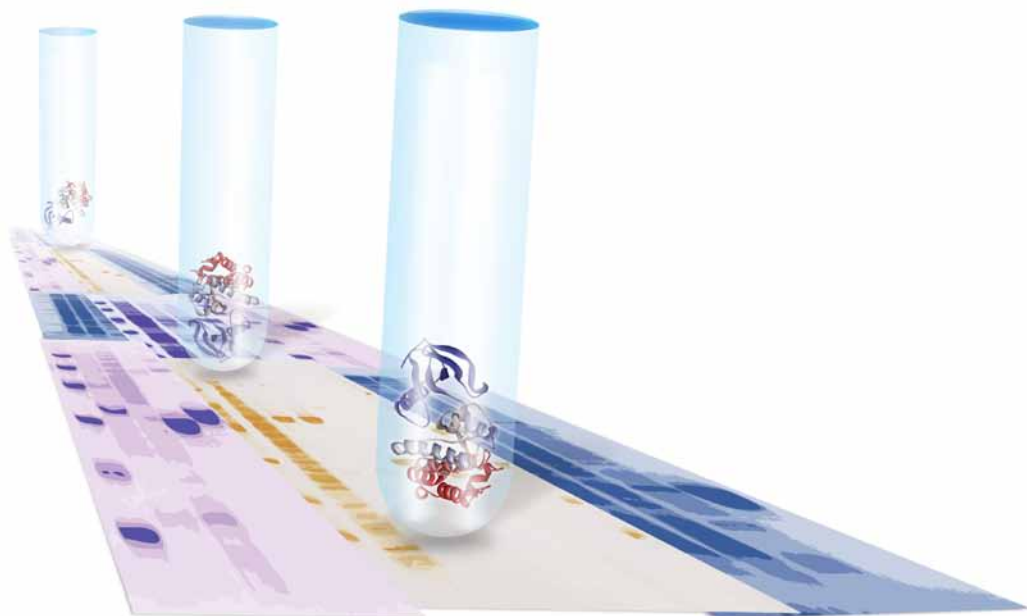


GE Healthcare  
Life Sciences

# Protein sample preparation

Selection Guide



# Protein sample preparation workflows



Almost all protein samples need further preparation after collection. The quality of sample preparation is crucial to get the best possible analytical results.

This selection guide helps you to find the appropriate methods and products to obtain proteins for further studies in scales from nanograms to milligrams of purified protein. Three separate workflows are available for different sources of target protein; recombinant proteins, antibodies, and proteins from natural sources. These workflows are further refined and adapted to suit different number of samples, from a few to many such as in screening applications.

In sample preparation, all the targeted protein from the initial biological source must be transferred into a homogeneous solution. This can be performed either with preserved biological activity or, if required, in denatured state. The initial preparations include operations such as sample collection, stabilization, and extraction.

After the initial preparation, a second step is often needed to selectively capture the target protein using enrichment or purification methods. For the study of proteins in plasma and serum, depletion of high-abundant proteins is often needed to be able to analyze low-abundant proteins.

Sample preparation also includes removal of interfering nonprotein contaminants present in the initial source, amendment of noncompatible buffer compositions, and adjustment of the total protein concentration and volume.

Our products address most parts of the sample preparation process for extraction, stabilization, and enrichment/purification of target molecules. A range of products are available, covering any scale and throughput of protein sample preparations: Mag Sepharose\*, MultiTrap\*, SpinTrap\*, GraviTrap\*, HiTrap\* and HiPrep\* are different formats for reliable enrichment, screening, and small-scale purification of any target proteins. All formats are based on the established GE Life Science's chromatography media, which offer efficient protocols resulting in high enrichment factor, purity, and recovery of your target proteins. Additional relevant products are also stated, where appropriate.

Our protocols are optimized to suit typical situations. If needed, critical steps can be easily refined following the guidelines in the Instructions.

# Enrichment and purification formats



**Mag Sepharose** para-magnetic beads are designed for simple enrichment of proteins and small-scale purification or screening. Mag Sepharose beads slurry volume can be varied in a linear manner to match capacity needs, and large sample volumes of low-expressed target protein can be enriched and concentrated. Sample volume from a few microliters to about 50 ml can be used with Mag Sepharose.



**SpinTrap** prepacked microspin columns enable fast small-scale enrichment, depletion, or purification of target protein using a bench top microcentrifuge. SpinTrap columns are prepacked with chromatography medium. Multiple plates samples can be processed simultaneously.



**MultiTrap** plates are prepacked 96-well filter plates for high-throughput processing of multiple samples; typically used for expression screening of proteins or optimization of conditions for capture and elution of target molecules. Each well is prepacked with a fixed volume of affinity chromatography medium. MultiTrap can be used manually or in automated systems, together with vacuum or centrifugation.



**GraviTrap** columns are prepacked gravity-flow columns for purification and clean-up of proteins and other biomolecules without the need for a purification system. GraviTrap columns are packed with 1 or 2 ml of chromatography medium, allowing capture of milligram amounts of target protein. **PD-10 Desalting Columns, PD MiniTrap\*, and PD MidiTrap\*** are prepacked gravity-flow columns designed for clean-up, desalting, and buffer exchange of biomolecules, allowing sample volumes between 0.1 and 3.5 ml.

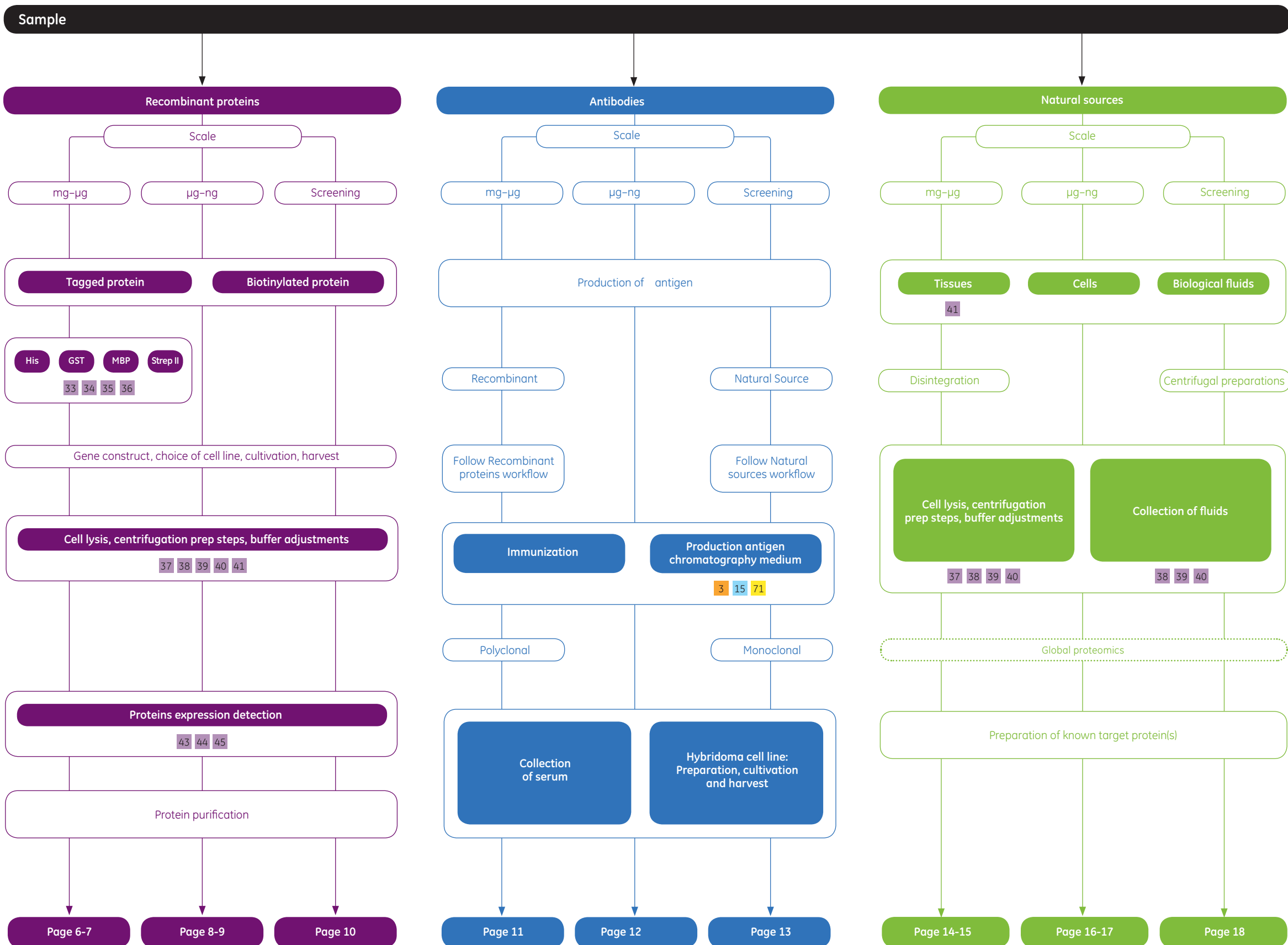


**HiTrap** columns are prepacked 1 or 5 ml columns that can be used either with a syringe, laboratory pump, or a chromatography system. A broad range of columns is available for purification of all different kinds of proteins. Two or more columns can easily be connected in series to increase the capacity making the loading sample volume very flexible.



**HiPrep 16/10** columns are prepacked 20 ml columns for use with chromatographic systems. They enable binding of high milligram to gram amounts of proteins and are useful tools for preparative purifications. The columns are available for purification of many different proteins, and a broad range of sample volumes can be loaded.

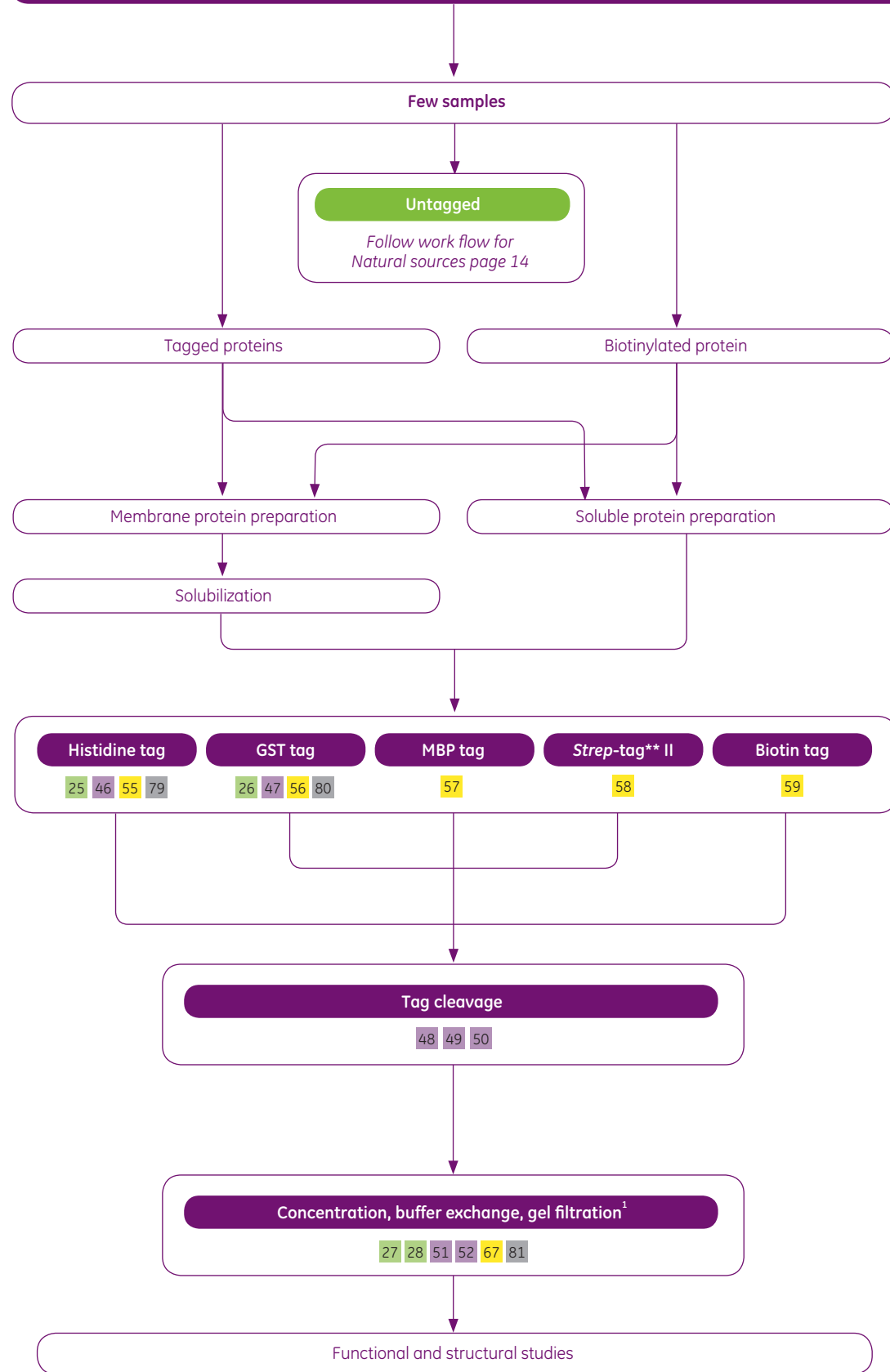
# Sample preparation for analytical purposes



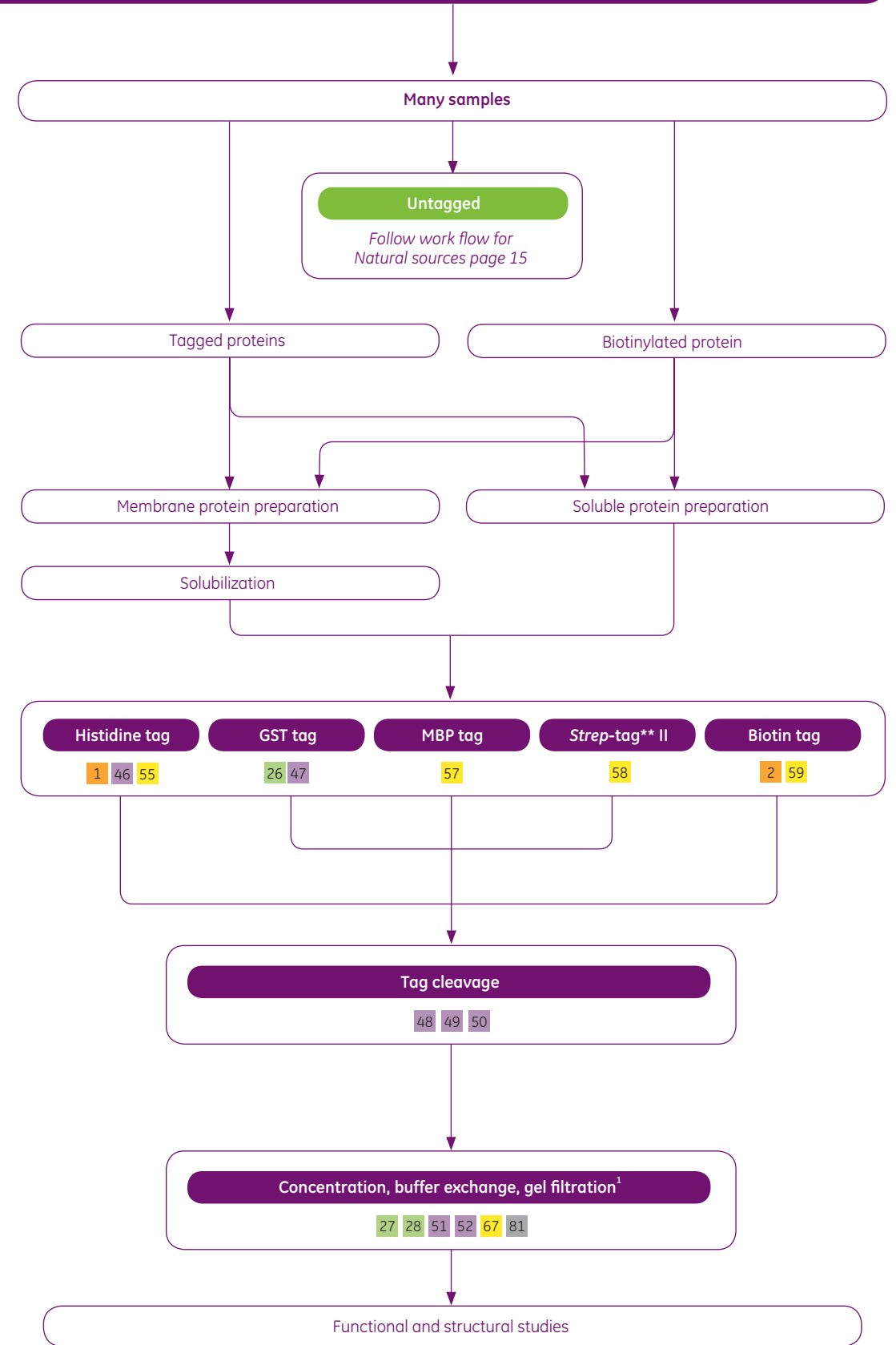
# Recombinant proteins

Microgram to milligram scale

Numbers of samples



<sup>1</sup> Column format is volume dependent

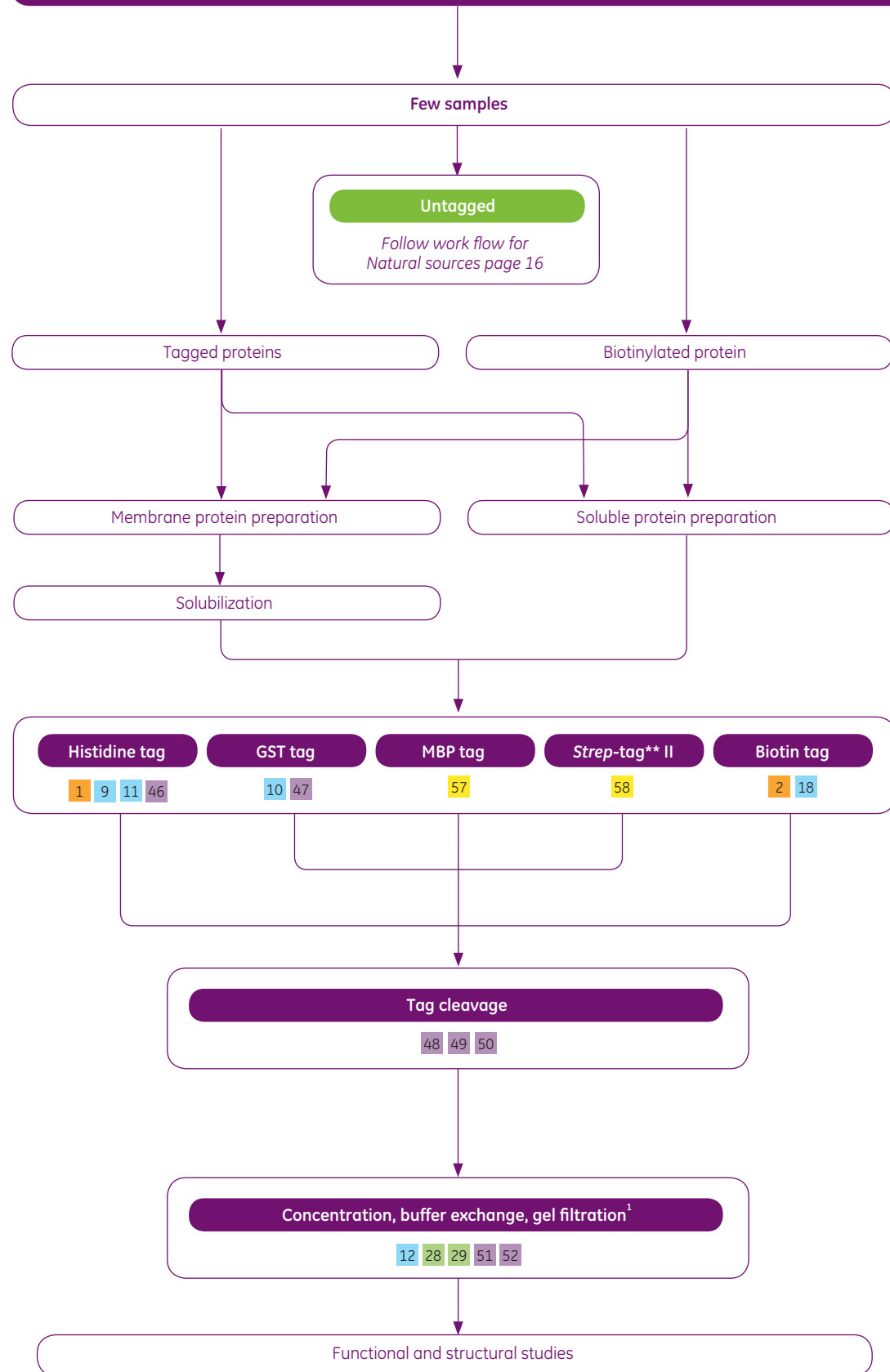


<sup>1</sup> Column format is volume dependent

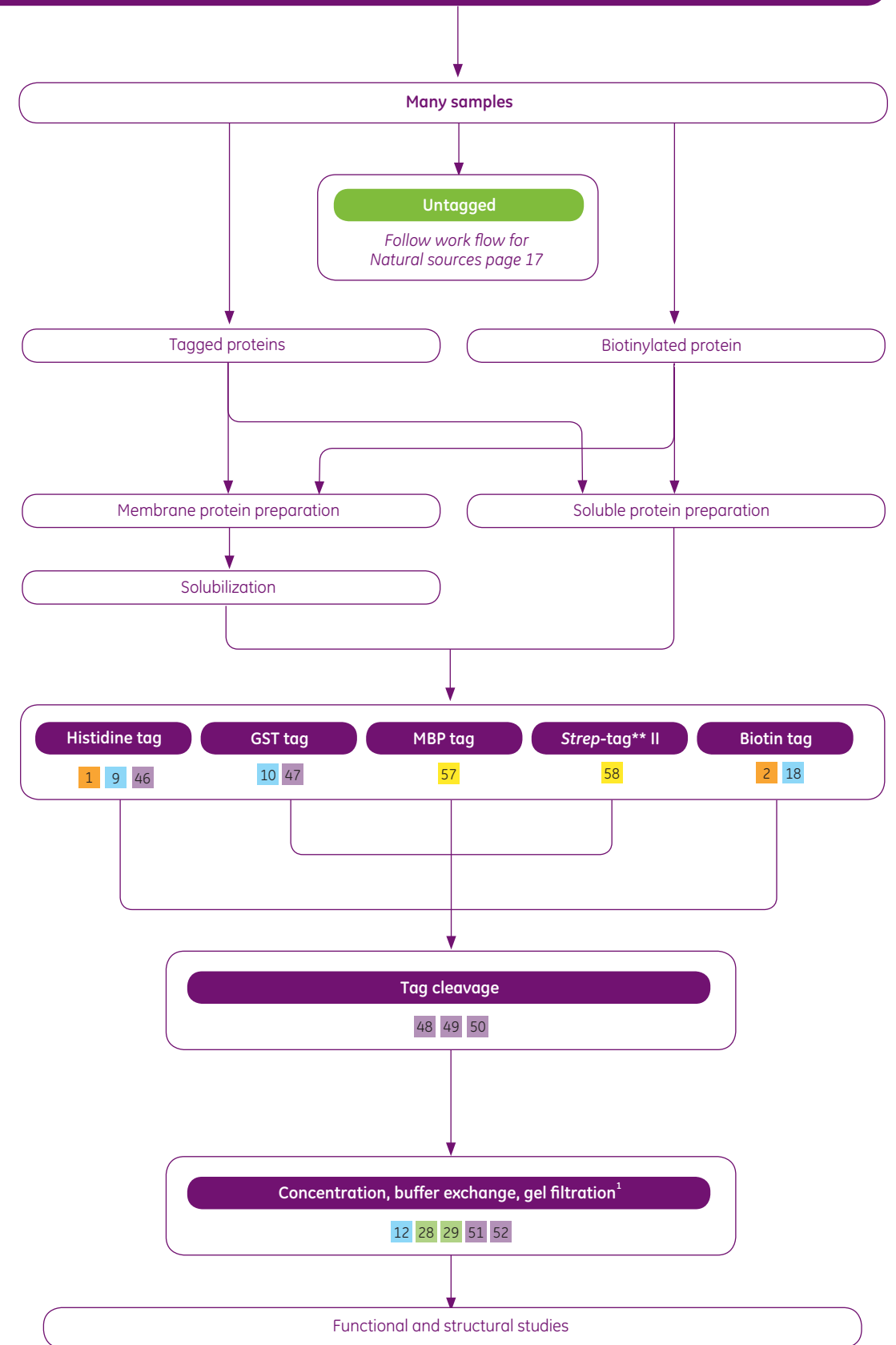
# Recombinant proteins

Nanogram to microgram scale

## Numbers of samples



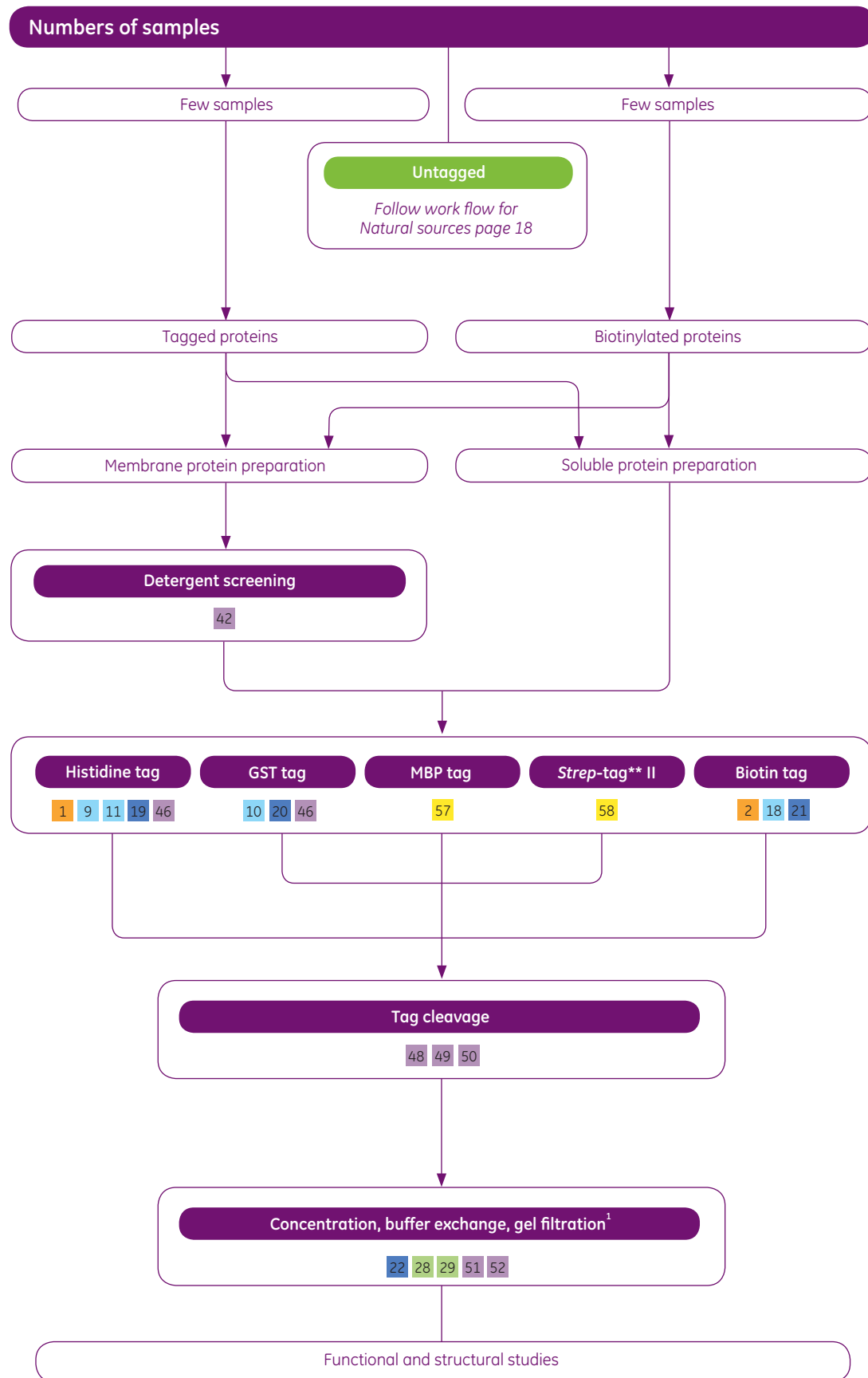
<sup>1</sup> Column format is volume dependent



<sup>1</sup> Column format is volume dependent

# Recombinant proteins

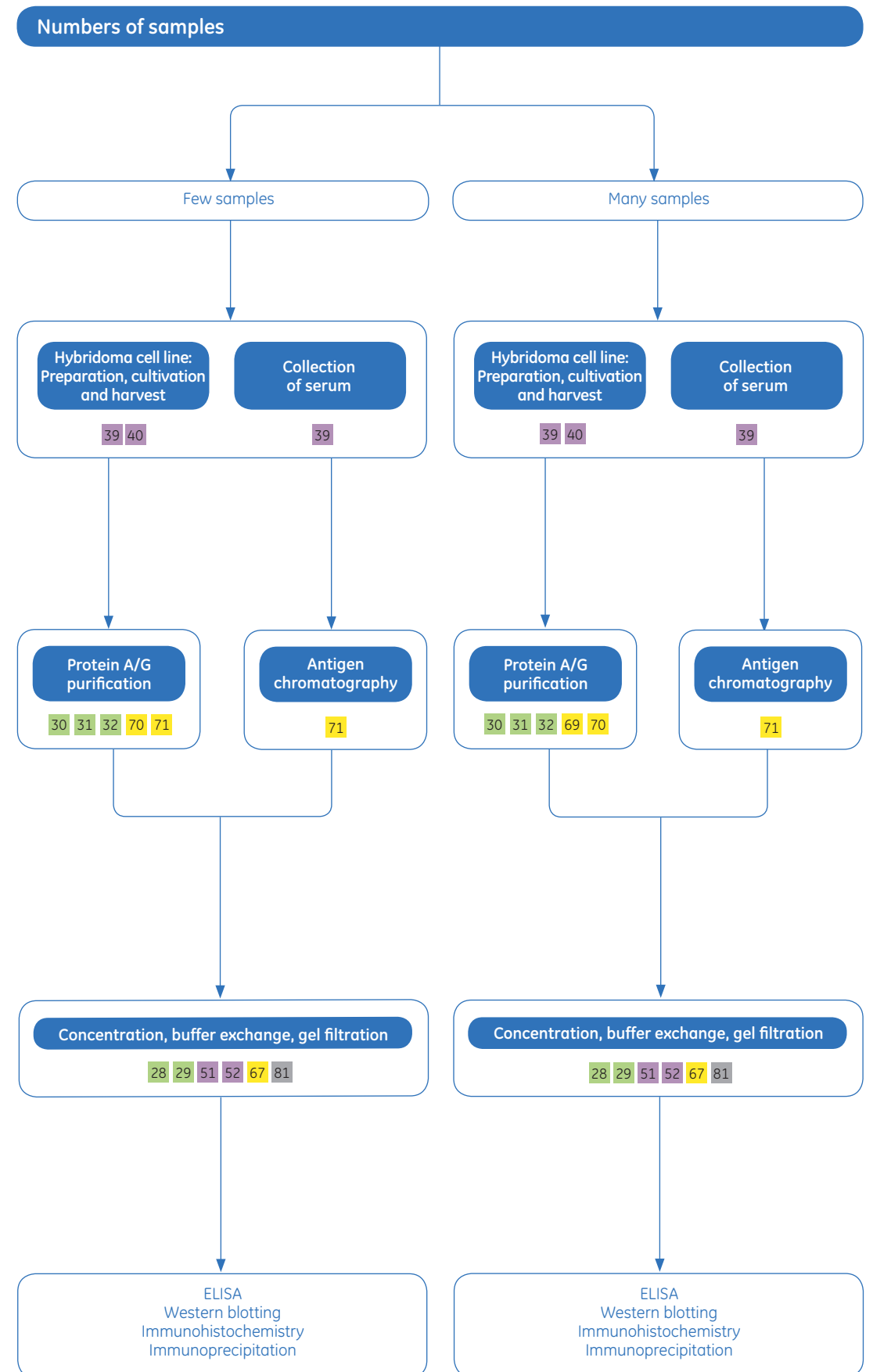
## Screening



<sup>1</sup> Column and 96-well plate format is volume dependent

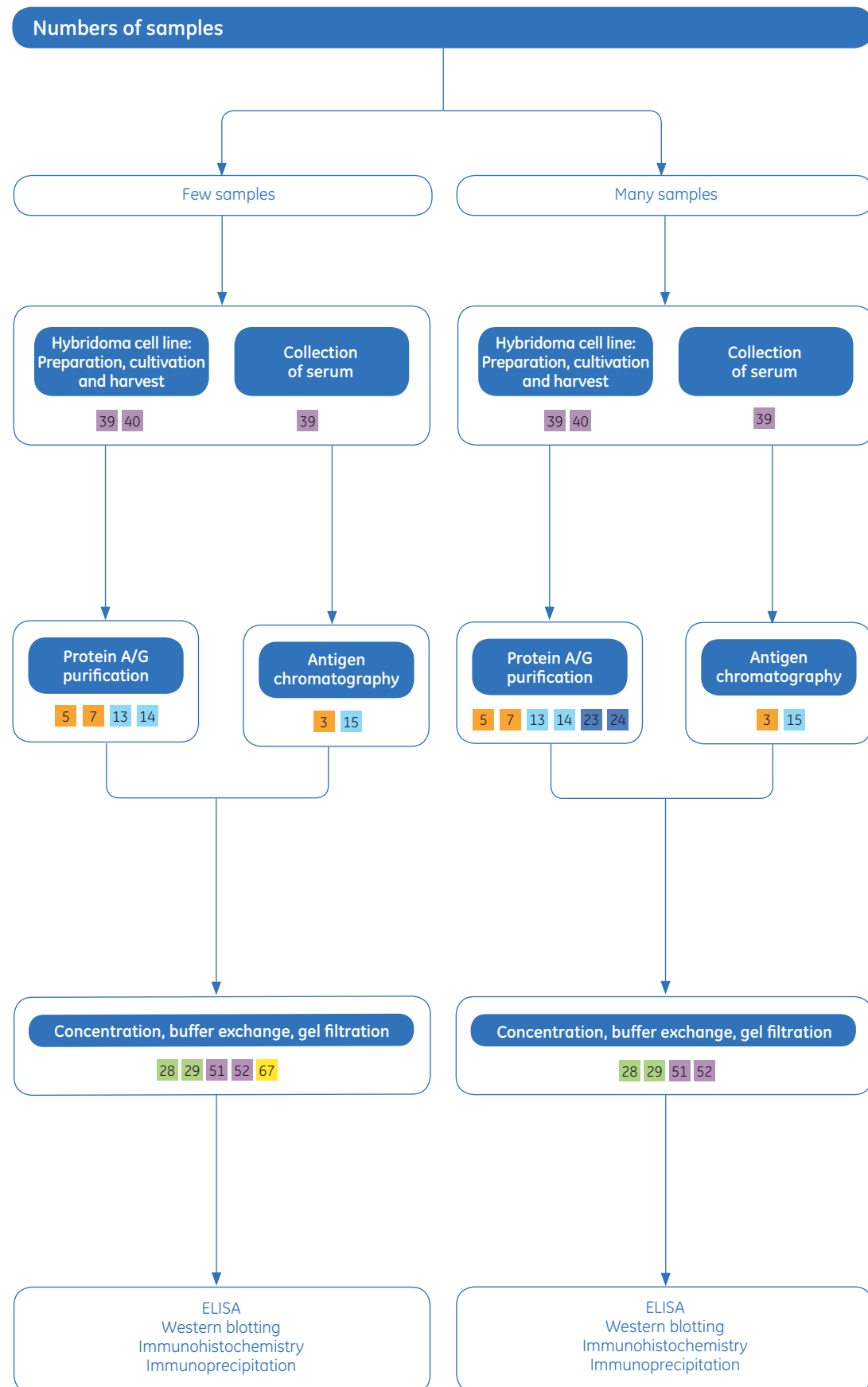
# Antibodies

## Microgram to milligram scale



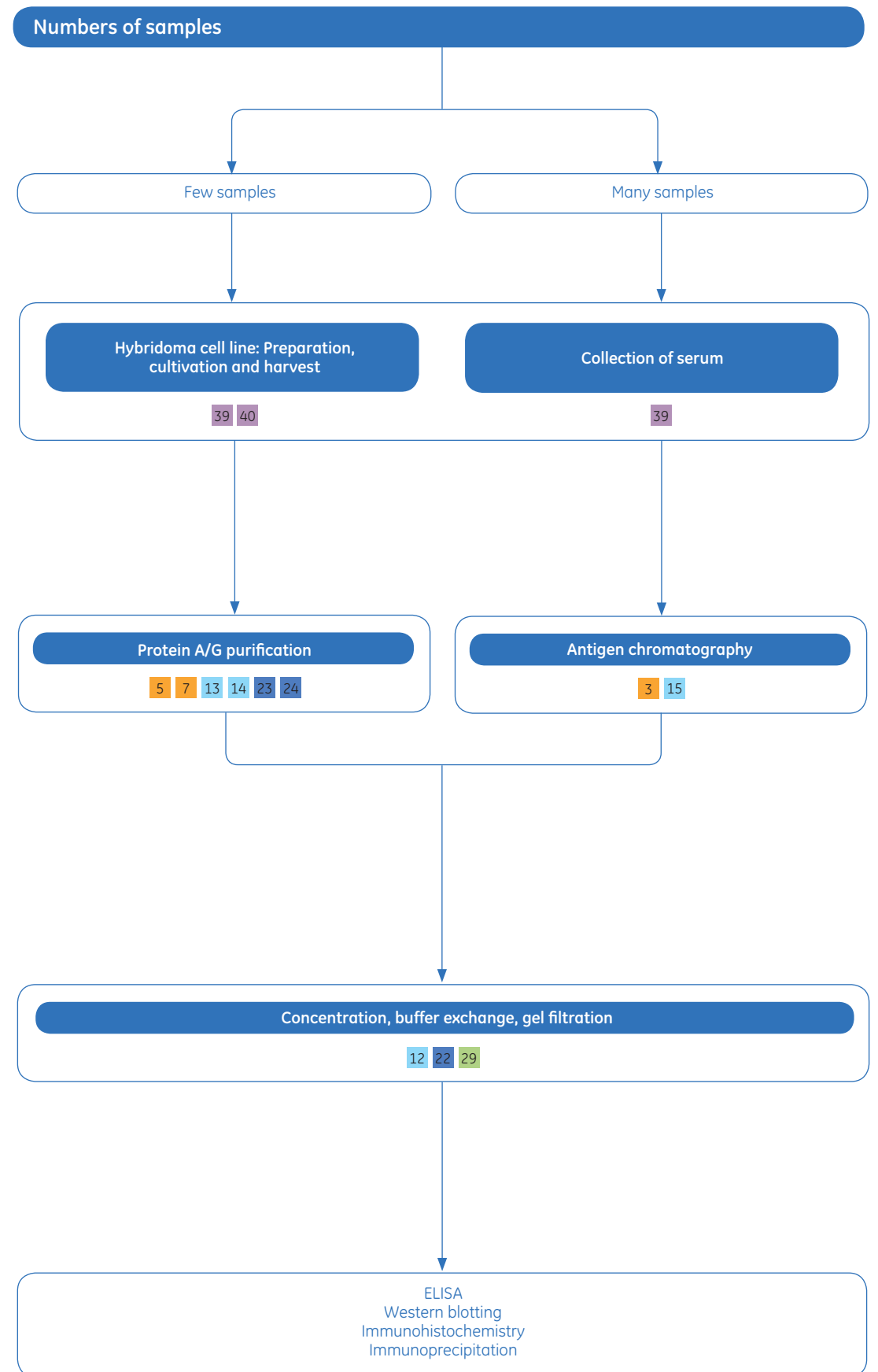
# Antibodies

Nanogram to microgram scale



# Antibody

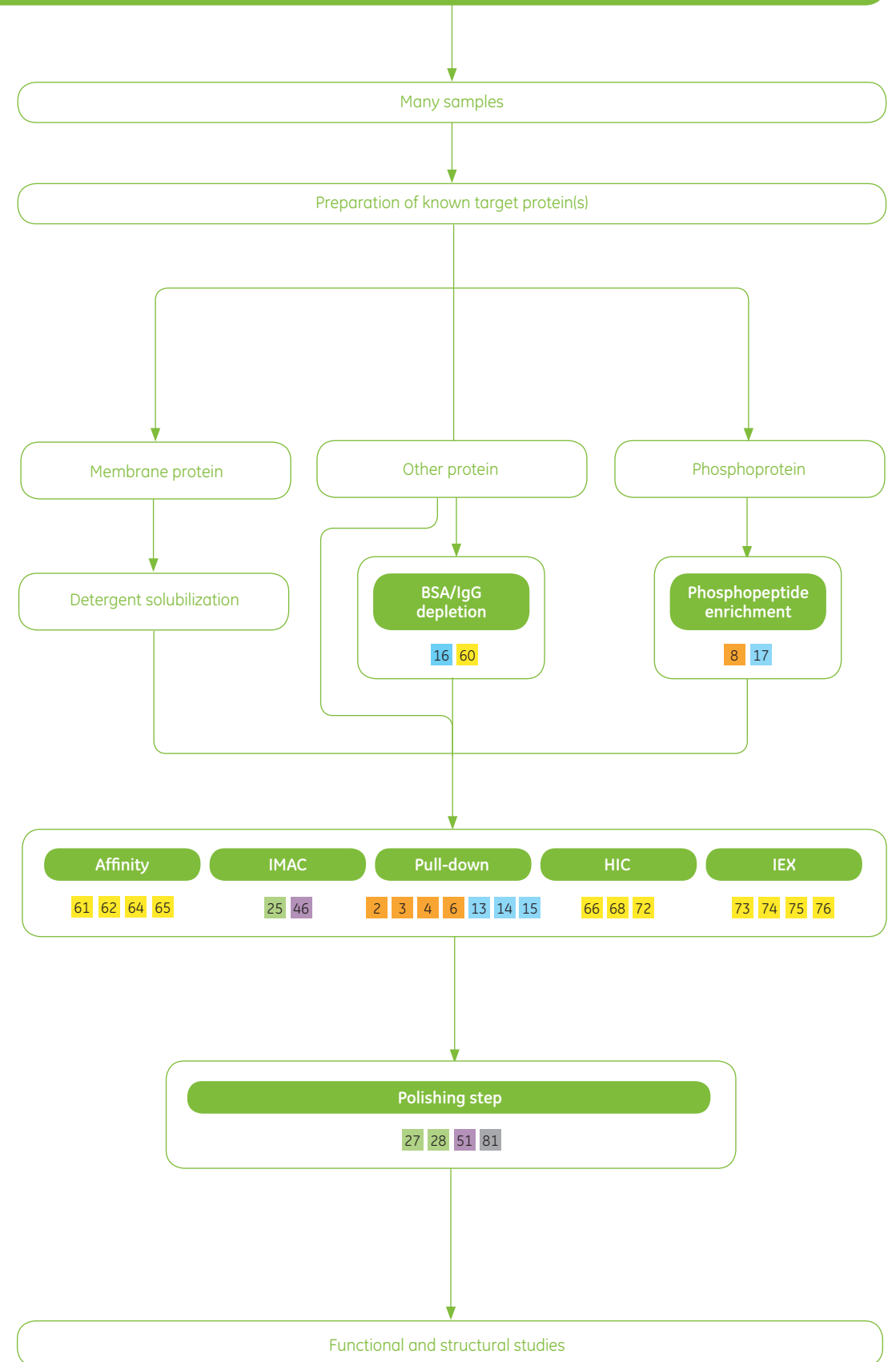
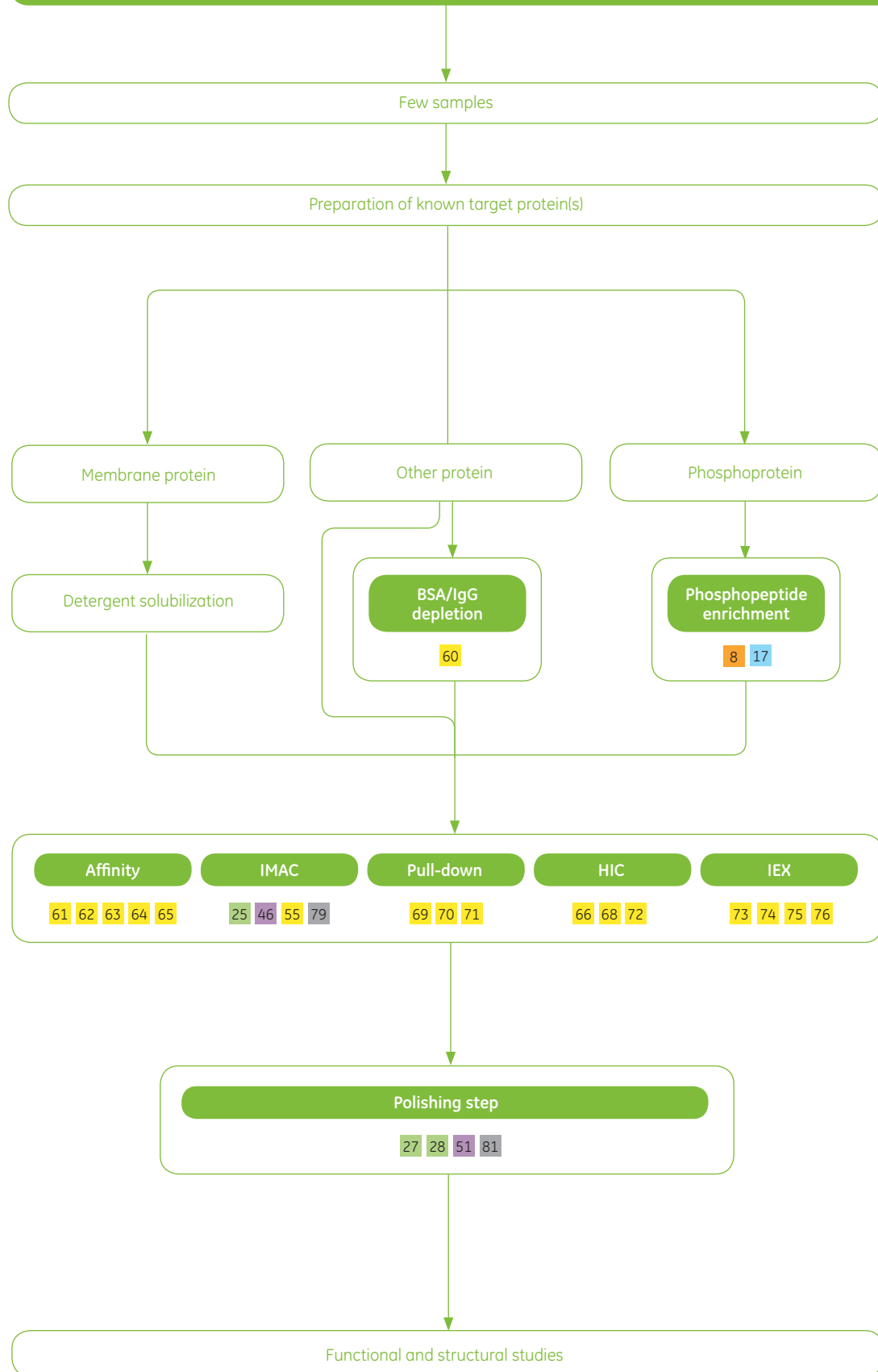
Screening



# Natural sources

Microgram to milligram scale

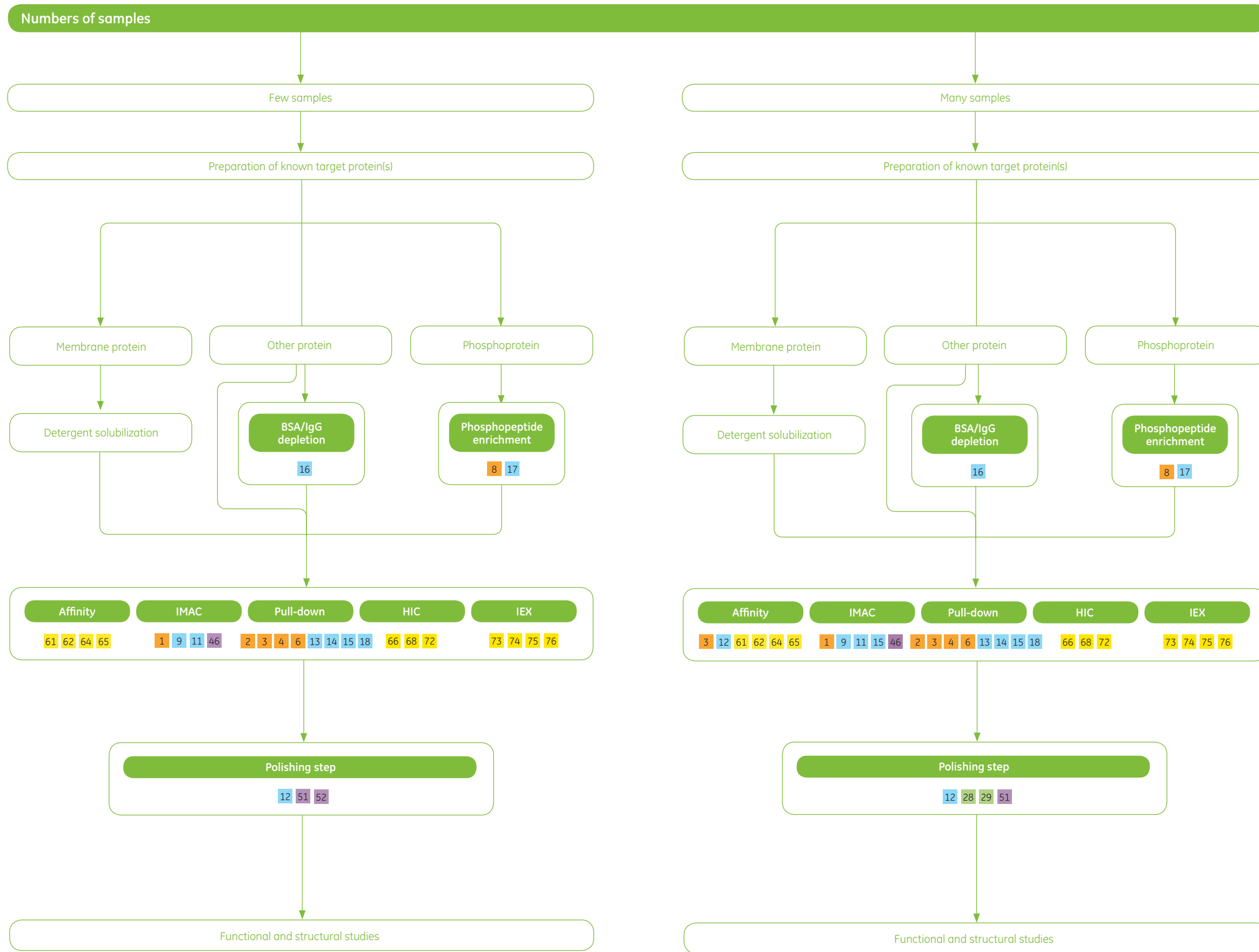
Numbers of samples





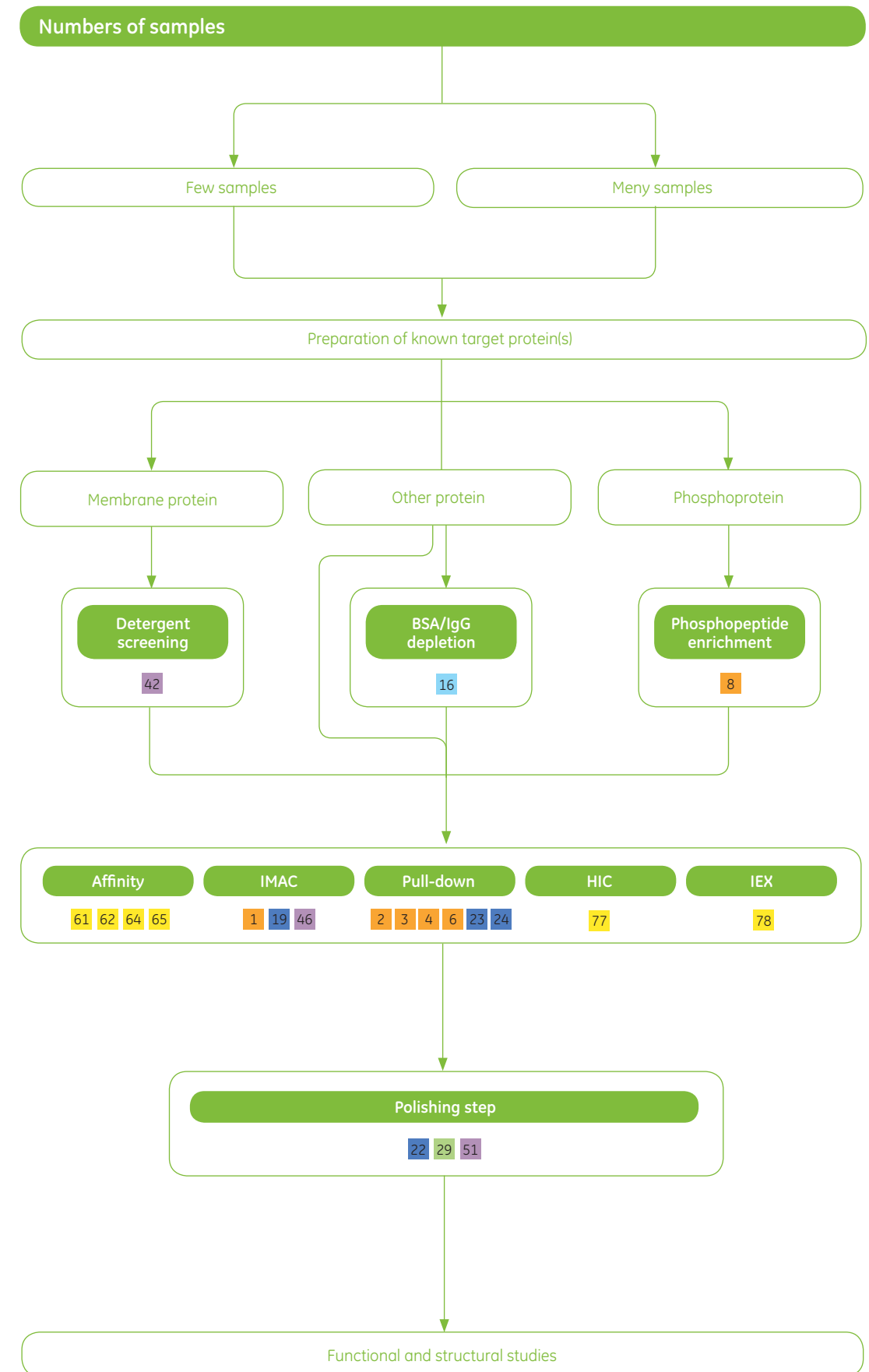
# Natural sources

Nanogram to microgram scale



# Natural sources

Screening





# About the selection guides

Three different work flows, for different sources of target proteins, are available

- Recombinant proteins
- Antibodies
- Proteins from natural sources

Each workflow contains three separate schemes; purifications in microgram to milligram scale, nanogram to microgram scale, or for screening purposes.

At the bottom of each track, reference is given to spreads with more detailed workflows for each source and scale. All of these spreads contains two workflows, one for few, and one for many samples.

In these workflows, suitable products are indicated with numbers. A list of all products corresponding to the numbers can be found on the right, Ordering information for products is found at the end of the Selection guide.

To use this Selection guide, start on pp 4-5, where the three workflows are found.



# Product index

1	His Mag Sepharose Ni	42	Membrane Protein Purification Kit
2	Streptavidin Mag Sepharose	43	Anti-His Ab
3	NHS Mag Sepharose	44	Anti-GST Ab
4	Protein A Mag Sepharose	45	GST Detection Module
5	Protein A Mag Sepharose Xtra	46	His Buffer Kit
6	Protein G Mag Sepharose	47	GST Buffer Kit
7	Protein G Mag Sepharose Xtra	48	PreScission Proetase
8	TiO <sub>2</sub> Mag Sepharose	49	Thrombin
9	His SpinTrap	50	Factor Xa
10	GST SpinTrap	51	Vivaspin
11	His SpinTrap Kit	52	Mini Dialysis Kit
12	PD SpinTrap G-25	53	MagRack 6
13	Protein A HP SpinTrap	54	MagRack Maxi
14	Protein G HP SpinTrap	55	HisTrap
15	NHS HP SpinTrap	56	GSTrap
16	Albumin & IgG Depletion SpinTrap	57	MBPTrap HP
17	Phos SpinTrap Fe	58	StrepTrap HP
18	Streptavidin HP SpinTrap	59	HiTrap Streptavidin HP
19	His MultiTrap	60	HiTrap Albumin & IgG Depletion
20	GST MultiTrap	61	HiTrap Blue HP
21	Streptavidin HP MultiTrap	62	HiTrap Heparin HP
22	PD MultiTrap G-25	63	HiPrep Heparin FF 16/10
23	Protein A HP MultiTrap	64	HiTrap Benzamidine FF (high sub)
24	Protein G HP MultiTrap	65	HiTrap Con A HP
25	His GraviTrap	66	HiTrap Butyl
26	GST GraviTrap	67	HiTrap Desalting
27	PD-10 Desalting Columns	68	HiTrap Phenyl
28	PD MidiTrap	69	HiTrap Protein A
29	PD MiniTrap	70	HiTrap Protein G
30	rProtein A GraviTrap	71	HiTrap NHS-activated HP
31	Protein G GraviTrap	72	HiTrap Octyl
32	rProtein A/Protein G GraviTrap	73	HiTrap Q
33	<i>E. coli</i> B121	74	HiTrap SP
34	pGEX vector	75	HiTrap DEAE FF
35	MK13K07 Helper Phage	76	HiTrap CM FF
36	GST vector primer for sequencing	77	HiTrap HIC Selection Kit
37	Yeast Protein Extraction Buffer Kit	78	HiTrap IEX Selection Kit
38	Mammalian Protein Extraction Buffer	79	HisPrep FF 16/10
39	Protease Inhibitor Mix	80	GSTPrep FF 16/10
40	Nuclease Mix	81	HiPrep 26/10 Desalting
41	Sample Grinding Kit		

For contact information for your local office,  
please visit, [www.gelifesciences.com/contact](http://www.gelifesciences.com/contact)

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US patent numbers 5,284,933 and 5,310,663, and equivalent patents and patent applications in other countries (assignee: Hoffman La Roche, Inc) relate to the purification and preparation of fusion proteins and affinity peptides comprising at least two adjacent histidine residues (commonly known as the histidine-tag technology).

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First published June 2011.

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