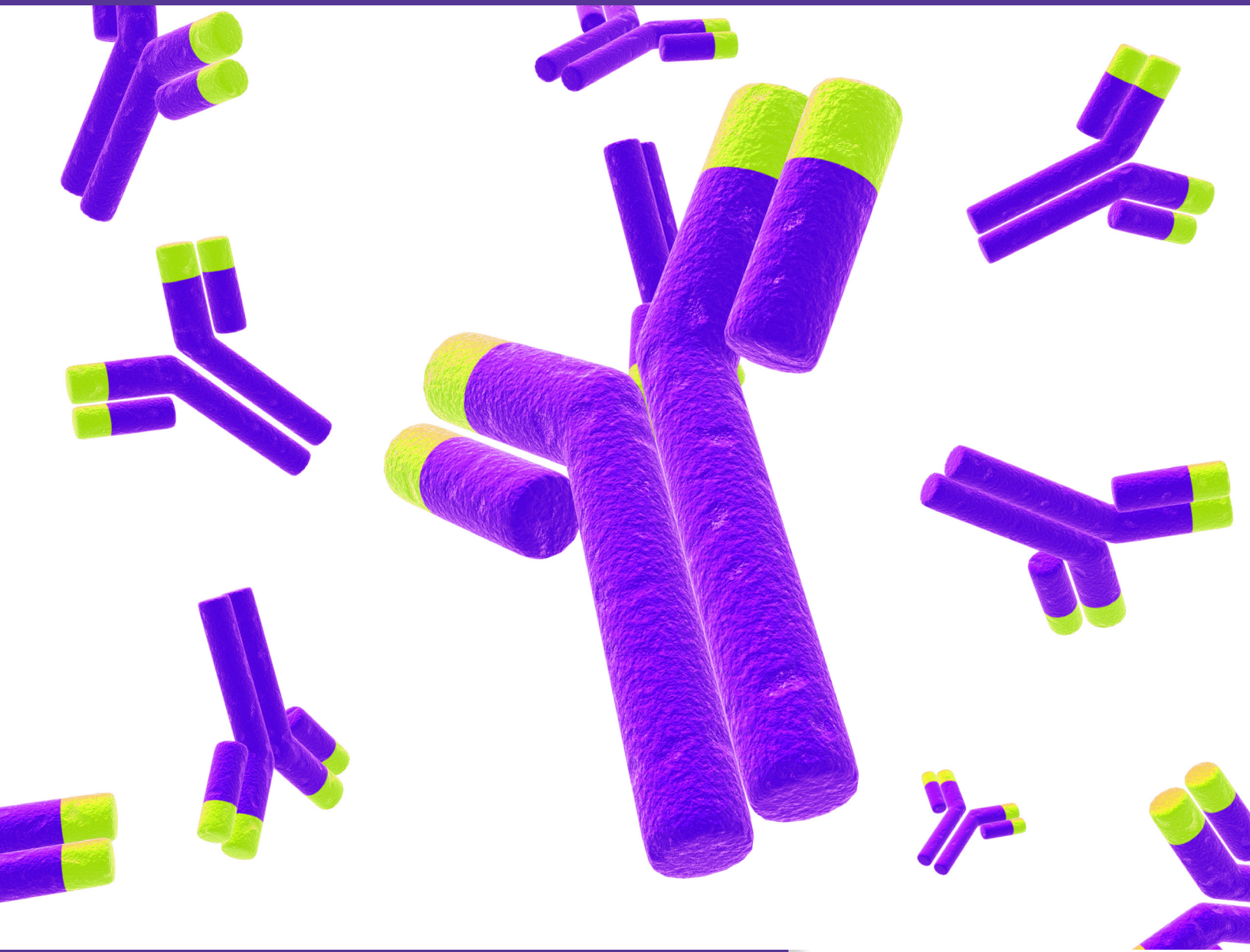


SouthernBiotech Custom Services



Quality Antibodies for Quality Research

SouthernBiotech

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Custom Services

Peptide Synthesis for Antibody Production

SouthernBiotech provides complete services for production of immunogenic peptides for antibody development. These services include -

Fmoc chemistry available for peptide synthesis

Synthesis of multiple antigenic peptides (MAPs)

Purification of synthesized peptide to achieve a purity of 95% (other levels of purity available upon request)

Evaluation of synthesized peptide by mass spectrometry, amino acid sequence analysis, and HPLC methods to ensure sequence integrity and purity prior to conjugation

Consultation available to select the appropriate chemistry for conjugation of peptide to carrier proteins

Conjugation to carrier protein and purification of peptide/carrier complex by gel filtration chromatography

Available Services for Peptide Synthesis

	Cat. No.
Peptide Synthesis (includes mass spectrometry and HPLC analysis)	SBCS-20
Peptide Purification (95% purity by mass spectrometry)	SBCS-21

Polyclonal Antibody Development and Production Services

Available Services for Polyclonal Antibody Development and Production

	Cat. No.
Conjugation to KLH for Immunization	SBCS-22K
Conjugation to BSA for Evaluating Antibody Titer	SBCS-22B
Homogenization of Antigen from Gels or Nitrocellulose Slices	SBCS-19
ELISA testing of Antiserum	SBCS-60

Rabbit Production Services - Standard Ninety (90) Day Protocol

Exclusive use of animals, housing, maintenance, pre-immune bleed, and Six (6) injections	SBCS-23
Day Thirty (30) - First Bleed	SBCS-23I
Day Sixty (60) - Second Bleed	SBCS-23II
Day Ninety (90) - Third Bleed - Serum shipped for evaluation	SBCS-23III
Project Termination	SBCS-23T
Note - All animals will be terminated Ten (10) days after the last scheduled shipment unless we receive written instructions by Day 100 to continue maintaining the animals for a specified period at our per diem rate per rabbit	
Per Diem per Rabbit for Project Extension	SBCS-RC

Note - It is recommended that multiple animals are used in order to maximize potential of immune response

Polyclonal Antibody Development and Production Services

Available Services Polyclonal Antibody Development and Production	Cat. No.
Goat/Sheep Production Services - Standard Ninety (90) Day Protocol	
Exclusive use of animals, housing, maintenance, pre-immune bleed, and Six (6) injections	SBCS-24
Day Thirty (30) - First Bleed	SBCS-24I
Day Sixty (60) - Second Bleed	SBCS-24II
Day Ninety (90) - Third Bleed - Serum shipped for evaluation	SBCS-24III
Project Termination	SBCS-24T
Note - All animals will be terminated Ten (10) days after the last scheduled shipment unless we receive written instructions by Day 100 to continue maintaining the animals for a specified period at our per diem rate per goat/sheep	
Per Diem per Goat/Sheep for Project Extension	SBCS-GC
Donkey Production Services - Standard Ninety (90) Day Protocol	
Exclusive use of animals, housing, maintenance, pre-immune bleed, and Six (6) injections	SBCS-25
Day Thirty (30) - First Bleed	SBCS-25I
Day Sixty (60) - Second Bleed	SBCS-25II
Day Ninety (90) - Third Bleed - Serum shipped for evaluation	SBCS-25III
Project Termination	SBCS-25T
Note - All animals will be terminated Ten (10) days after the last scheduled shipment unless we receive written instructions by Day 100 to continue maintaining the animals for a specified period at our per diem rate per donkey	
Per Diem per Donkey for Project Extension	SBCS-DC
Chicken Production Services - Standard Fifty (50) Day Protocol	
Exclusive use of animals, housing, maintenance, pre-immune bleed, egg collection and Four (4) injections	SBCS-26
Day Twenty-Nine (29) through Day Fifty (50) - Egg Collection	SBCS-26E
Project Termination	SBCS-26T
Note - All animals will be terminated Ten (10) days after the last scheduled shipment unless we receive written instructions by Day 60 to continue maintaining the animals for a specified period at our per diem rate per chicken	
Per Diem per Chicken for Project Extension	SBCS-CC

Custom Services

Hybridoma Development

SouthernBiotech offers services for the development of monoclonal antibodies. Our Hybridoma Development Services include - immunization, cell fusion, cloning, and characterization of your monoclonal antibody.

Available Services for Hybridoma Development	Cat. No.
Pre-Immunization Antigen Processing and Modification	
Homogenization of Antigen in Gels or Nitrocellulose Slices	SBCS-19
Conjugation to KLH for Immunization	SBCS-22K
Conjugation to BSA for Screening	SBCS-22B
Dialysis into Physiological Buffer	SBCS-22D
Phase I - Immunization and Evaluation of Antibody Titer	SBCS-30I
Immunization of Three (3) BALB/c mice with your supplied and purified antigen. Includes Four (4) immunizations per our standard protocol and daily care. Test bleeds and ELISA data will be provided for your evaluation and decision to continue development.	
Phase II - Fusion, Plating, and Screening	SBCS-30II
Splenocytes of one of the mice are fused with a selected myeloma cell line. All specific antibody producing colonies are selected by ELISA for expansion. Supernatant from Five (5) of the best hybridoma-containing wells will be shipped to you for screening. Cryopreservation of up to Five (5) positive clones.	
Phase III - Cloning, Expansion, and Cryopreservation	SBCS-30III
Subcloning of one positive clone to monoclonality by two rounds of limiting dilution. ELISA screening to detect positive antibody-secreting subclones. Cryopreservation of Ten (10) vials of the hybridoma cell line and isotyping of one monoclonal antibody.	
Phase IV - Amplification	SBCS-30IV
Production and shipment of monoclonal antibody supernatant from one selected clone	

Monoclonal Antibody Services

SouthernBiotech offers a broad range of services for the production of monoclonal antibodies. Our Monoclonal Antibody Production Services include production of your monoclonal antibody *in vivo* in BALB/c or immunocompromized (e.g., SCID, Nu/Nu, RAG-/-) mice, or *in vitro* in flasks or bioreactors. Additional services include antibody purification and conjugation to fluorochromes and enzymes.

Available Services for Monoclonal Production	Cat. No.
Subcloning, Expansion, and Screening of Clones	SBCS-30S
Cryopreservation - Up to Twenty (20) Clones per Month	SBCS-30C
Mycoplasma Testing	SBCS-29
Ascites Production in Ten (10) BALB/c Mice	SBCS-31
Ascites Production in Twenty (20) BALB/c Mice	SBCS-32
Ascites Production in Fifty (50) BALB/c Mice	SBCS-33
Ascites Production in One-Hundred (100) BALB/c Mice	SBCS-34
Ascites Production in Ten (10) Immunocompromised Mice	SBCS-35
Ascites Production in Twenty (20) Immunocompromised Mice	SBCS-36
Ascites Production in Fifty (50) Immunocompromised Mice	SBCS-37
Ascites Production in One-Hundred (100) Immunocompromised Mice	SBCS-38
<i>In vitro</i> Production in Cell Culture Flask - Fifty (50) to One-Hundred (100) mL	SBCS-91
<i>In vitro</i> Production in Cell Culture Flask - Thirty (30) mL	SBCS-92
<i>In vitro</i> Production in Bioreactor	SBCS-90

Note - Before initiating an antibody development project, the customer must provide SouthernBiotech with a signed assurance that any customer-supplied material/antigen is mycoplasma-free, non-infectious, non-carcinogenic, and has no known safety concerns to animals or humans.

Custom Services

Purification Services

SouthernBiotech uses a variety of methods for purification of antibody from serum, ascites, and culture supernatants including $(\text{NH}_4)_2\text{SO}_4$ salt precipitation, ion exchange and size exclusion chromatography, Protein A and Protein G affinity chromatography, and custom affinity chromatography. The method employed is dictated by the species, the source material, and the level of immunoglobulin purity required. The amount of supernatant or serum required per column depends on the concentration and total milligrams of the solution.

Available Services for Protein Purification	Cat. No.
Affinity Purification Antibodies of extremely high purity and specificity can be obtained using custom affinity chromatography. A minimum of 10 mg of pure antigen (or purified peptide) is needed to perform this procedure.	SBCS-45
Ammonium Sulfate Precipitation Ammonium sulfate is widely used in isolating both IgM and IgG from a variety of species. A gel filtration and/or an ion exchange step can be employed to further purify the immunoglobulin of interest.	SBCS-40
Ion Exchange Chromatography This method is useful as an adjunct to ammonium sulfate precipitation for purifying antibodies from ascites fluid or where Protein A and Protein G elution conditions may damage the antibody. It can also be used for removing trace quantities of DNA contaminants.	SBCS-41
Protein A Purification High yields of pure IgG can be obtained in a single-step purification using Protein A affinity chromatography, which differ in their ability to bind antibodies of different origins and IgG subclasses.	SBCS-43
Protein G Purification High yields of pure IgG can be obtained in a single-step purification using Protein G affinity chromatography, which differ in their ability to bind antibodies of different origins and IgG subclasses.	SBCS-44
Size Exclusion/Gel Filtration Chromatography A single gel matrix or a sequence of size exclusion columns can be used for purification of IgM and IgG antibodies. The purification strategy employed is dependent on the immunoglobulin class and the source of the material.	SBCS-42
Low Endotoxin Purification Purification under aseptic conditions to generate clean, low-endotoxin antibody preparations.	SBCS-48
Purification of IgY from Chicken Egg Yolks	SBCS-47

Fragmentation Services

Antibody fragmentation services for 5 - 20 mg of antibody includes dialysis, digestion, concentration, and purification of the fragments.

Available Services for Antibody Fragmentation	Typical Yield	Cat. No.
Fc Fragmentation	15 - 20%	SBCS-71
Fab Fragmentation	15 - 20%	SBCS-72
F(ab) ₂ Fragmentation	30 - 40%	SBCS-73

Conjugation Services

Available Services for Antibody Conjugation	Cat. No.
Alexa Fluor® 488 (AF488) 2 - 10 mg	SBCS-88
Alexa Fluor® 555 (AF555) 2 - 10 mg	SBCS-99
Alexa Fluor® 647 (AF647) 2 - 10 mg	SBCS-89
Alexa Fluor® 700 (AF700) 2 - 10 mg	SBCS-98
Alkaline Phosphatase (AP) 2 - 10 mg	SBCS-57
Allophycocyanin (APC) 2 - 10 mg	SBCS-55
Allophycocyanin/Cyanine 5.5 (APC/CY5.5) 2 - 10 mg	SBCS-77
Allophycocyanin/Cyanine 7 (APC/CY7) 2 - 10 mg	SBCS-78
β-galactosidase (BGAL) 2 - 20 mg	SBCS-49
Biotin (BIOT) 2 - 20 mg	SBCS-59
Cyanine 3 (CY3) 2 - 10 mg	SBCS-54A
Cyanine 5 (CY5) 2 - 10 mg	SBCS-54B
Fluorescein Isothiocyanate (FITC) 2 - 20 mg	SBCS-50
Horseradish peroxidase (HRP) 2 - 20 mg	SBCS-58
Pacific Blue™ (PACBLU) 2 - 10 mg	SBCS-97
R-Phycoerythrin (PE) 2 - 10 mg	SBCS-53
R-Phycoerythrin/Cyanine 5.5 (PE/CY5.5) 2 - 10 mg	SBCS-75
R-Phycoerythrin/Cyanine 7 (PE/CY7) 2 - 10 mg	SBCS-76
R-Phycoerythrin/Texas Red® (PE/TXRD) 2 - 10 mg	SBCS-74
Sepharose® (SEPH) 2 - 10 mg	SBCS-69
Spectral Red® (SPRD) 2 - 10 mg	SBCS-56
Tetramethylrhodamine Isothiocyanate (TRITC) 2 - 20 mg	SBCS-51
Texas Red® (TXRD) 2 - 20 mg	SBCS-52

Note - Antibodies should be supplied at a minimum concentration of 5 mg/mL in neutral buffer without preservatives or protease inhibitors. Other custom conjugates available upon request. Conjugated antibodies can be tested in an appropriate immunoassay upon customer request.

Additional Services

Available Services	Cat. No.
Antibody Concentration	SBCS-22C
Antibody Lyophilization	SBCS-22L

Custom Services

Characterization/Testing Services

SouthernBiotech employs several techniques to evaluate the quantity, quality, and function of purified antibodies, including - enzyme linked immunosorbent assay (ELISA), flow cytometry, immunoblotting, SDS-polyacrylamide gel electrophoresis (SDS-PAGE) and Limulus Amoebocyte Lysate (LAL) assay.

Available Services for Protein Characterization/Testing	Cat. No.
ELISA Testing for Antigen-Specific Activity	SBCS-60
ELISA Testing for Isotype Determination	SBCS-61
Endotoxin Testing by LAL Assay	SBCS-64
Flow Cytometry Analysis	SBCS-65
HPLC	SBCS-66
Immunoblotting	SBCS-63
SDS-PAGE Analysis	SBCS-62
Biotin Quantitation by HABA/Avidin	SBCS-67

To initiate a Custom Service Project contact our Technical Services Department at 205.945.1774 or technical@southernbiotech.com. A project manager will be assigned and report to you regularly on an agreed schedule. Discounts and third party arrangements are not accepted in conjunction with SouthernBiotech Custom Services.

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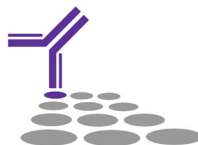
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