

## CUSTOM POLYCLONAL ANTIBODY DEVELOPMENT

QED is committed to excellence across all facets of our operations, and to responding to the ever-changing needs of our customers. We have been developing monoclonal and polyclonal antibodies to numerous biotechnology and pharmaceutical companies, research institutions, and universities throughout the United States and internationally for over 20 years. We have successfully developed antibodies to small molecules, intact proteins, and peptides. QED also offers genetic immunization, saving your time and money in the production of your antibodies. QED was the first, and is one of the few, who offer this service.

When you develop a custom antibody protocol with QED we are dedicated to providing quality immunological services. We use New Zealand White females rabbits, bred on our farm, and adult laying leghorn chickens. All of our animals are cared for by qualified personnel to ensure that you are receiving the highest quality service. Our facilities are USDA certified and maintained by our IACUC committee.

We keep our customers well informed of their protocol progress with notices of 1) Project initiation, 2) immunizations, 3) sample delivery schedules, 4) project progress updates and 5) any other factors that would affect the successful completion of your project.

QED offers full-service immunological services including:

- Monoclonal and Polyclonal antibody development.
- Bifunctional and anti-idiotypic antibody development.
- Genetic Immunization
- Cell banking,
- Antibody production in ascites or *in vitro*, using our proprietary high-yield media.
- Antigen conjugation to KLH, THY, or BSA.
- Assay development.
- Antibody purification
- Antibody conjugation with HRP, Alkaline Phosphatase, biotin or FITC.

Enclosed you will find 1) Terms and Conditions, 2) Standard Protocols for Rabbits and Chickens, 3) Pricing and Discount Schedules, and 4) a project outline questionnaire.

If you need additional information, a custom price quote, or are ready to take advantage of our services, please contact a QED customer service representative.

We look forward to working with you.

## Custom Polyclonal Production Terms And Conditions

This contract is between **QED Bioscience Inc.** of 10919 Technology Place Suite C, San Diego, California 92127 (QED) and \_\_\_\_\_ of \_\_\_\_\_ (COMPANY).

### Antigen(s)

- A. The CLIENT shall supply to QED free of cost all necessary quantities of antigen, assay protocols (as required and available) and any non-conventional assay reagents for use by QED in generating and screening antibodies produced therefrom for the CLIENT. Antigen(s) shall be supplied be injected without further purification. Such materials shall be deemed confidential, not to be disclosed or used for the benefit of any third party or for its own benefit other than as contemplated hereunder. QED cannot accept antigens that are pathogenic, toxic, and/or carcinogenic.
- B. Conjugation of antigen(s) to a protein carrier for the purpose of immunization may be performed by QED for an additional charge and shall be invoiced separately.
- C. Any material or information provided to QED by COMPANY that is not in the public domain shall be considered proprietary and confidential and shall not be disclosed or provided to any third party without written authorization from COMPANY.

### Rabbit Protocol

- A. A standard rabbit protocol shall include two (2) rabbits per antigen. COMPANY shall have the option of adding additional rabbits to the protocol for an additional charge. QED will use their standard protocol (Appendix A) unless COMPANY provides their protocol for use. QED shall provide quality animal care, but in the event that an animal expires prior to project completion, a pro rata reduction in project prices shall be applied.
- B. Serum shall be collected from one (1) pre-immunization bleed and four (4) post-immunization production bleeds. Serum antibody titers shall be determined by QED using antigen(s) provided by COMPANY and shall be reported to COMPANY in a timely manner. Serum samples shall be provided to COMPANY per COMPANY's instructions to QED.

### Chicken Protocol

- A. A standard chicken protocol shall include three (3) chickens per antigen. COMPANY shall have the option of adding additional chickens to the protocol for an additional charge. QED will use their standard protocol (Appendix C) unless COMPANY provides their protocol for use. QED shall provide quality animal care, but in the event that an animal expires prior to project completion, a pro rata reduction in project prices shall be applied.

# QED Bioscience Inc.

Revision 05/04/11

## ADVANCED ANTIBODY TECHNOLOGIES

- B. Eggs shall be collected pre-immunization and after each of four (4) immunizations. Eggs will be provide to COMPANY unless other arrangements are made with QED for antibody purification and testing. If testing is requested, results shall be determined by QED using antigen(s) provided by COMPANY and shall be reported to COMPANY in a timely manner.

### Animals, Immunizations, And Collections

- A. QED shall recommend an immunization protocol, although COMPANY shall have the option of providing an immunization protocol for QED's use.
- B. QED may modify the immunization protocol during the course of the project per COMPANY's instructions to QED, however, some variations on immunization or bleeding schedules may result in changes in prices.
- C. Results shall be based on reasonable best efforts.

### Reports

- A. QED shall provide periodic written or oral reports as the contracted work proceeds. A final report at the end of the project shall also be provided, which shall include a summary of the work performed.

### Payment

- A. COMPANY shall receive an invoice for project prices following the first immunization, and an invoice for the remaining project charges such as shipping at the end. Charges will be based upon the information in Appendices B, D, and E, as appropriate. Terms are 15 days net.

### Agreement

The undersigned parties agree to these Terms and Conditions:

<b>COMPANY</b> _____	<b>QED Bioscience Inc.</b>
<b>Name (Print):</b> _____	<b>Name (Print):</b> _____
<b>Signature:</b> _____	<b>Signature:</b> _____
<b>Title :</b> _____	<b>Title:</b> _____
<b>Date :</b> _____	<b>Date:</b> _____

## APPENDIX A

### STANDARD RABBIT PROTOCOL (60 Days)

<u>DAY</u>	<u>ACTION</u>
0	Pre-immunization bleed
1	Primary immunization 500 ug/animal SQ in Complete Freund's Adjuvant
8	Boost # 1 500ug/animal SQ in Incomplete Freund's Adjuvant
22	Production Bleed # 1
29	Boost # 2 500ug/animal SQ in Incomplete Freund's Adjuvant
36	Production Bleed # 2
43	Boost # 3 250 ug/animal SQ in Incomplete Freund's Adjuvant
50	Production Bleed # 3
57	Production Bleed # 4
60	Project termination

- Pre-immunization bleeds average 5 ml serum. Production bleeds average 20-25 ml serum per bleed per rabbit
- Bleed ELISA is done at completion of project at no charge or can be done after each bleed for an additional charge.
- Total amount of antigen required for the Standard Protocol is 4.0 mg.
- Additional antigen is required if you request ELISA testing.
- Average yield of serum from the Standard Protocol is 160-200ml.

## APPENDIX B

### RABBIT POLYCLONAL ANTISERUM DEVELOPMENT PRICING

STANDARD PROTOCOL (Two Rabbits) **\$725.00**

#### ADDITIONAL ITEMS

PER DIEM BOARD AND CARE	\$1.82/Day/Animal
PRODUCTION BLEEDS (Avg. 20-25ml Serum)	\$18.15/Procedure/Animal
TEST BLEEDS (Avg. 7-10ml Serum)	\$14.85/Procedure/Animal
SQ/IM/IP IMMUNIZATIONS	\$14.03/Procedure/Animal
INTRADERMAL IMMUNIZATIONS	\$17.00/Procedure/Animal
INTRAVENIOUS IMMUNIZATIONS	\$14.58/Procedure/Animal
EXSANGUINATION	\$46.75/Animal
TERMINATION	\$16.78/Animal
ANTIGEN CONJUGATION TO CARRIER PROTEIN	\$200.00/1-2 mg \$375.00/3-5 mg \$600.00/6-10 mg
ASSAY DEVELOPMENT	\$1750.00
ADDITIONAL ELISA ASSAY	\$100.00/Plate
AFFINITY PURIFICATION	\$595.00/column \$250.0/1-25mL over 25 mL \$10.00/ml

## APPENDIX C

### STANDARD CHICKEN PROTOCOL ( 70 Days )

<u>DAY</u>	<u>ACTION</u>
<b>0</b>	Primary immunization 400 ug/chicken IM/SQ in Complete Freund's Adjuvant
<b>14</b>	Boost # 1 400 ug/chicken IM/SQ in Incomplete Freund's Adjuvant
<b>28</b>	Boost # 2 400 ug/chicken IM/SQ in phosphate-buffered saline (PBS)
<b>42</b>	Boost # 3 400 ug/chicken IM/SQ in PBS
<b>42-70</b>	Egg collection and shipping
<b>56</b>	Boost # 4 400 ug/chicken IM/SQ in PBS
<b>84</b>	Termination

- Pre-immunization eggs are collected for each chicken.
- Total amount of antigen required for the Standard Protocol is 6.0 mg.
- IgY purification and antibody ELISA can be done during or at completion of project; see Appendix D for pricing. Additional antigen is required if you request ELISA testing.
- Average yield of eggs from the Standard Protocol is 40-60 eggs per chicken.

## APPENDIX D

### CHICKEN POLYCLONAL ANTIBODY DEVELOPMENT PRICING

**STANDARD PROTOCOL (Three Chickens) \$450.00**

- **Includes Initiation, Immunization, Egg Collection, Termination**

#### ADDITIONAL ITEMS

PER DIEM BOARD AND CARE	\$1.82/Day/Animal
EGG COLLECTION	\$18.15/Procedure/Animal
IMMUNIZATIONS	\$14.03/Procedure/Animal
TERMINATION	\$17.00/Animal
ANTIGEN CONJUGATION TO CARRIER PROTEIN	\$200.00/1-2 mg \$375.00/3-5 mg \$600.00/6-10 mg
ASSAY DEVELOPMENT	\$1750.00
YOLK ISOLATION	\$1.00/Egg
IgY PURIFICATION	\$600/12 Eggs
ELISA ASSAY	\$70.00/Plate
AFFINITY PURIFICATION	\$595.00/column \$250.0/1- 25mL over 25 mL \$10.00/ml

## APPENDIX E

### SCHEDULE OF DISCOUNTS FOR POLYCLONAL ANTIBODY DEVELOPMENT PROJECTS

NUMBER OF PROJECTS	DISCOUNT OFF LIST PRICE
2-20 Rabbits	0
21-50 Rabbits	5%
51-100 Rabbits	10%
101-200 Rabbits	15%
>200 Rabbits	Will Quote

The discount may be applied to a single contract of multiple projects, or in a cumulative fashion.

If applied in a cumulative fashion, the number of projects initiated during the past 12 calendar months will be used to determine the discount level.

## PROJECT OUTLINE QUESTIONNAIRE

If you wish to start your development project, please fill out the following information. Please only one antigen per initiation form.

### **Contact / shipping Information**

Company/Institution		
QED Bioscience Quote # :		
Contact		
Address		
City, State, Zip Code		
Phone	Fax	Email

### **Billing Information**

Company/Institution		
Attention		
PO Number or Credit Card (Name on card, account number, expiration date)		
Address		
City, State, Zip		
Phone	Fax	Email

# QED Bioscience Inc.

Revision 05/04/11

ADVANCED ANTIBODY TECHNOLOGIES

## Immunization Requirements

Species of Animal: <input type="checkbox"/> Rabbits <input type="checkbox"/> Chickens	Number of Animals: _____	Number of groups: _____
Rabbit Project Type: <input type="checkbox"/> Standard Rabbit <input type="checkbox"/> Custom Rabbit <input type="checkbox"/> Peptide Antibody Package		
Chicken Project Type: <input type="checkbox"/> Standard Chicken <input type="checkbox"/> Custom Chicken <input type="checkbox"/> Program 1 <input type="checkbox"/> Program 2		
****Please attach any custom protocols****		
Chicken : <input type="checkbox"/> Yolk Isolation(Additional Charge) <input type="checkbox"/> IgY Purification(Additional Charge / Included in Program 1 and 2)		

## Antigen Information

Antigen Name: _____ Peptide Sequence: _____
<input type="checkbox"/> Peptide <input type="checkbox"/> Protein <input type="checkbox"/> Plasmid <input type="checkbox"/> Bacteria Killed or Inactivated/ How: _____
% of Purity: _____
Antigen Form: <input type="checkbox"/> Liquid <input type="checkbox"/> Dry/Lyophilized <input type="checkbox"/> Frozen <input type="checkbox"/> Gel Slices
Buffer antigen is in: _____ Concentration: _____
Volume: _____ ml Dry _____ mg
Antigen Storage: <input type="checkbox"/> +4 <input type="checkbox"/> -20 <input type="checkbox"/> -80    Antigen Size Molecular Weight _____
Number of Vials Shipped: _____
*** QED cannot accept antigens that are pathogenic, toxic, and/or carcinogenic ***

## Conjugation of Antigen

Is Antigen conjugated to a carrier  Yes  No What Carrier: \_\_\_\_\_

**\*\*QED recommends peptides are conjugated to KLH for immunization and BSA for testing\*\***

If antigen is not conjugated is it required?  Yes  No

KLH  BSA  THY  Other: \_\_\_\_\_

Free Reactive Group:  Cysteine  Carboxyl

## Analysis Requirements

Do you want ELISA Titration on Samples:  Yes  No (1 included for no additional charge)

Additional Testing :  After each bleed  Assay Samples: \_\_\_\_\_

## PURIFICATION/ADDITIONAL PROCESSING (optional)

Would you like the antibody purified?  Yes  No Volume: \_\_\_\_\_ ml

Method of Purification:

Protein G  Protein A  Affinity  Custom protocol attached

\*\*\* Additional 10mg of antigen required for Affinity Purification)

Would you like 0.1% sodium azide added to purified antibody?  Yes  No

Do you have a preference for final delivery buffer (default PBS pH 7.4)?  Yes  No

Custom \_\_\_\_\_

Do you have a preference for concentration of antibody in final preparation?  Yes  No  
\_\_\_\_\_ mg/ml

Would you like 50% glycerol added:

Yes  No

\*\*\* All Antibody is 0.2um Sterile filtered prior to packaging \*\*\*

## Conjugation of Purified Antibody

Do you want your polyclonal antibody conjugated:  Yes  No

HRP  AP  Biotin  FITC

Amount: \_\_\_\_\_

# QED Bioscience Inc.

ADVANCED ANTIBODY TECHNOLOGIES

Revision 05/04/11

## PACKAGING

Final Packaging:  Bulk aliquot  Multiple aliquots, Aliquot size: \_\_\_\_\_ (additional charges apply) Do you want 0.1% NaN<sub>3</sub> added to your Sera :  Yes  No

Remaining Antigen:  Return With Final Shipment  Discard  Retain (6 Months)

Preferred storage/Shipping conditions:

Ice Packs  Dry Ice  Other \_\_\_\_\_

\*\*\*Dry Ice Additional Charges Apply\*\*\*

## SHIPPING METHOD

Shipping Schedule:

End of Project  After Each Bleed  Custom \_\_\_\_\_

UPS  FEDEX  Prepay and add to invoice Account Number: \_\_\_\_\_

Priority (Additional Charges Apply)  Standard

## Comments

# QED Bioscience Inc.

ADVANCED ANTIBODY TECHNOLOGIES

Revision 05/04/11

Fax Completed form to 858-592-1509

Ship all Materials and copy of this form to:

QED Bioscience Inc.

Attn: Jennifer Johnson

10919 Technology Place Suite C

San Diego, CA 92127

Please inform QED if you require a Material Transfer Agreement (MTA) to be executed prior to shipping cell line(s). QED can provide a MTA, or customer can provide their institution's MTA.