



Product Catalog


Leading innovator, producer and provider of monodisperse
discrete pegtm (dPEG™) derivatives

QUANTA BIODESIGN
L I M I T E D

Fax your orders to 614 760-9781 or **NEW:** Order online at www.quantabiodesign.com

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Last update 12/09



Quanta BioDesign, Ltd. was founded in March, 1999 in Powell, Ohio by **Paul D. Davis, Ph.D.** for the purpose of developing and commercializing an extensive line of products for companies involved in drug discovery and diagnostic development programs. These products are based on our proprietary discrete polyethylene glycol (dPEG[®]) chemistries, including our unique processes for making these important compounds. Our single molecular weight ethylene glycol conjugation technology, dPEG[®], can eliminate common problems found in the development of diagnostic and therapeutic products, such as aggregation and non-specific interactions, poor water solubility, poor delivery, delivery issues/options, short serum half life, toxicity and antigenicity.

The dPEG[®] product line is a unique technology platform which can be custom tailored to meet specific physical, chemical and morphological requirements in a broad array of diagnostic and therapeutic applications. Chemistry applications which incorporate dPEG[®] products include conjugations, simple chemical modifications, cross linking, biotinylation, signal amplification, modification of biological therapeutics and peptide synthesis.

Recently we introduced dPEG[®] products that offer new delivery options as well. We are involved in developing new cross-linking and labeling chemistries that incorporate the dPEG[®] technology, and will allow for completely new approaches to existing opportunities in these same areas of therapeutic and diagnostic development, and will revolutionize many of these areas as the new generations of drugs and diagnostics evolve.

Each product is of high purity, a single discrete compound and available in bulk quantities at discounted prices.

Please also visit our website: www.QuantaBioDesign.com.



How do I order?

- **Phone:** (866) 792-9222 or (614) 792-2958
Monday through Friday 9:00 am to 5:00 pm (EST)
- **Fax:** (614) 760-9781 (24 hours, 7 days a week)
- **E-mail:** sales@quantabiodesign.com
- **Website:** www.quantabiodesign.com

Ordering Information needed

- Your name or customer account name
- Telephone and /or Fax
- Shipping and Billing Addresses
- Purchase Order # or Credit Card Information or other Payment Method
- Product number and Quantities
- Valid e-mail address (if available)
- If confirmation is requested, please request on the order form
- Orders can be placed any time by fax or e-mail

Payment

We accept MasterCard, Visa, American Express, USD check, and bank transfers. Our banking information will be on the invoice. (Please do not send cash)

Shipping and Storage Details

Products will usually ship the order the same day, if it is received by 3:00pm EST. Most of the compounds we sell are stable under normal conditions. We ship our compounds via Fedex overnight with ice packs or under refrigerated conditions as necessary. Orders outside the United States are shipped by Fedex International Priority. We recommend storing Quanta products in the freezer at -20°C or in the refrigerator at 4° for long term storage. The storage details will be shipped with the product.

No products are shipped or delivered on weekends or U.S. holidays.



If you have a technical question about a product you received or have seen in the catalog, please send an e-mail to tech@quantabiodesign.com or call us at (614)792-2958 or (866) 792-9222.

Material Safety Data Sheets

MSDS's are available on our website under each individual product. We can also fax or e-mail a copy. Please mention your request on the order form if needed.

Product Analysis

Quanta BioDesign's products are unique, single molecular weight (MW), discrete PEG (dPEG™) compounds, synthesized de novo from pure, small units (e.g., triethylene glycol or tetraethylene glycol). Purity is assayed by HPLC, TLC, and/or NMR.

Certificate of Analysis

A certificate of analysis (C of A) will be sent with your product(s) if requested. The C of A provides the test method used, the results, and the purity level of the product.



United States

Peptides International
11621 Electron Drive
Louisville, Kentucky 40299
Phone: 1-800-777-4779
Fax: (502)-267-1329
Web: www.pepnet.com

ThermoFisher Scientific
P.O. Box 117
Rockford, Illinois 61105
Phone: (800) 874-3723
Fax: (800) 842-5007
Web: www.piercenet.com

VWR International
1310 Goshen Parkway
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Orders: 800-932-5000
Web: www.vwr.com

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dPEG[®]
based
Fluorescent
and other
Dye Labels

Carboxyfluorescein-dPEG[®]x-NHS ester



Product Features and Benefits

- x = 4, 8, 12 or 16
- popular fluorescein fluorophore with dPEG[®] spacer!!
 $\lambda_{ex} = 488$
- amine reactive...dye label peptides, proteins and oligos
- antigen useful for making anti-fluorescein antibodies
- Popular fluorescent dye label...NOW with dPEG[®] spacers
- Amine reactive label for the synthesis of a range of bioconjugates
- Spacer provides the hydrophilicity the label needs to balance the hydrophobicity of the labeled protein, helping to eliminate aggregation and solubility problems
- dPEG[®] spacer options
- Available conveniently as the NHS ester
- useful in fluorescence microscopy, flow cytometry and immunofluorescence-based assays such as Western blotting and ELISA.
- the NHS-ester derivative has greater specificity toward primary amines in the presence of other nucleophiles and results in a more stable linkage following labeling.
- Obtained as mixtures of isomers with reactive groups attached at the 5- and 6-positions of the bottom ring. The properties of these isomers are indistinguishable in terms of excitation and emission spectra, and for protein applications there is no need for a specific isomer.
- yields hydrolysis resistant derivatives which show excellent performance and stability at physiological pH values

References:

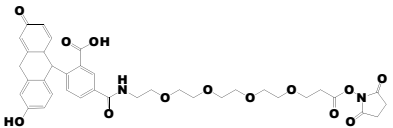
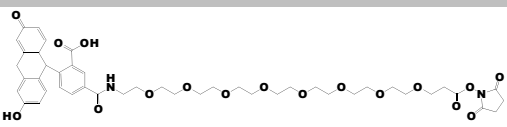
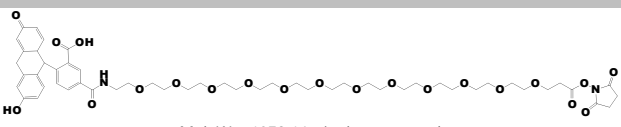
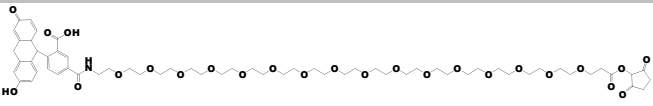
- a. Extending the applicability of carboxyfluorescein in solid-phase synthesis." Fischer R, Mader O, Jung G, Brock R. *Bioconjug. Chem.* **14**: 653-60 (2003).
- b. "Protein labeling with fluorescent probes." Holmes KL, Lantz LM. *Methods Cell. Biol.* **63**: 185-204 (2001).
- c. A mild method for fluorescein labeling of base-sensitive oligonucleotides on solid support." Bologna JC, Imbach JL, Morvan F. *Tetrahedron Lett.* **41**: 7317 (2000).
- d. Simultaneous detection of TaqMan probes containing Fam and Tamra reporter fluorophores." Nasarabadi S, Milanovich F, Richards J, Belgrader P. *Biotechniques* **27**: 1116-1118 (1999).
- e. Design, synthesis, and spectroscopic properties of peptide-bridged fluorescence energy-transfer cassettes." Li Y, Glazer AN. *Bioconjug. Chem.* **10**: 241-245 (1999).
- f. Flow cytometric analysis of the in situ accessibility of Escherichia coli 16S rRNA for fluorescently labeled oligonucleotide probes." Fuchs BM, Wallner G, Beisker W, Schwippl I, Ludwig W, Amann R. *Appl. Environ. Microbiol.* **64**: 4973-4982 (1998).
- g. Comparison of three common amine reactive fluorescent probes used for conjugation to biomolecules by capillary zone electrophoresis." Banks PR, Paquette DM. *Bioconjug. Chem.* **6**: 447 (1995).

Properties:

Excitation source	488 nm spectral line, argon-ion laser
Excitation wavelength	494 nm
Emission wavelength	518 nm
Extinction coefficient	>70,000/M cm
Purity by HPLC	> 90%
Solubility	Soluble in DMF or DMSO
Storage	Desiccated at -20°C, protect from moisture, use only fresh solutions
Reactive groups	NHS ester, reacts with primary amines at pH 7.0-9.0

Carboxyfluorescein-dPEG[®]x-NHS ester (cont.)



Product #	Description	100 mg	1000 mg
10883	Carboxyfluorescein-dPEG [®] ₄ -NHS ester	\$125	\$750
	 <p>Mol. Wt.: 720.72; single compound dPEG[®] Spacer is 17 atoms and 18.1 Å</p>		
10884	Carboxyfluorescein-dPEG [®] ₈ -NHS ester	\$175	\$1000
	 <p>Mol. Wt.: 896.93; single compound dPEG[®] Spacer is 28 atoms and 32.2 Å</p>		
10885	Carboxyfluorescein-dPEG [®] ₁₂ -NHS ester	\$225	\$1250
	 <p>Mol. Wt.: 1073.14; single compound dPEG[®] Spacer is 40 atoms and 46.5 Å</p>		
10886	Carboxyfluorescein-dPEG [®] ₁₆ -NHS ester	\$250	\$1350
	 <p>Mol. Wt.: 1248.36; single compound dPEG[®] Spacer is 51 atoms and 60.7 Å</p>		

Lissamine Rhodamine B sulfonamide-dPEG[®]₄-acid

A fluorescent dPEG[®] label (5- and 6-mixed isomers)



Product Features and Benefits:

- dPEG[®]₄ pegylation spacer imparts additional water solubility to dye
- Allows incorporation of a water soluble, non-aggregating, non-immunogenic spacer into dye conjugate
- Pegylation Spacer is 19.5 Angstroms in length
- General activation procedure for making the NHS ester: Use EDC and NHS (10-20% moles excess) in methylene chloride to make the NHS ester. Other active esters can be made similarly.

Note of caution: The NHS should be added with the EDC to prevent formation of the anhydride.

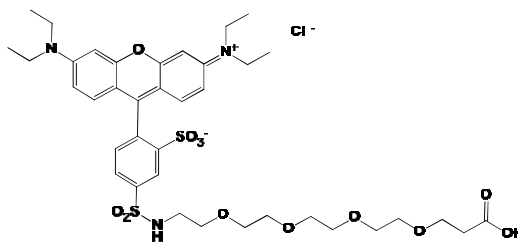
Note: This is just one of many activation methods, others include the use of DSC (N,N'-disuccinimidyl carbonate) and TEA in the appropriate solvent of choice, as well as the use of carbodiimides other than EDC.

Used for peptide labeling using a variety of activating "concoctions," which can also be used for direct coupling to other amines.

Protocol for in situ activation:

Use a 10-20% molar excess of EDC and NHS in dry methylene chloride (dried over 3 Angstroms molecular sieves). Add a methylene chloride solution of the acid to the dry reagents under dry conditions. Stir for several hours or overnight, then evaporate the solvent and use. Can also treat reaction mixture with a small amount of silica gel to adsorb the excess EDC and the urea by-product, filter, then evaporate the solvent and use.

Product #	Description	10 mg
10229	Lissamine Rhodamine B sulfonamide-dPEG [®] ₄ -acid	\$175



Mol. Wt.: 805.96; single compound
dPEG[®] Spacer is 16 atoms and 18 Å

DNP-dPEG[®]_x-NHS ester



Product Features and Benefits:

- x = 4 or 12
- antigen to attach to carrier protein to make anti-DNP antibodies
- antigen label for anti-DNP antibodies
- Unique dPEG[®] containing pegylation labeling reagents with amine reactivity as the activated NHS ester
- Vital NEW type of label carrier in antibody manufacturer
- Also for placing DNP as a probe diagnostic
- Hydrophilic, water solubilizing and non-immunogenic/non-antigenic spacer
- Using this compound in the applications will reduce or eliminate many problems inherent when using conventional chemistry, e.g., immunoreactivity to spacer, non-specific binding, increases water solubility, etc.

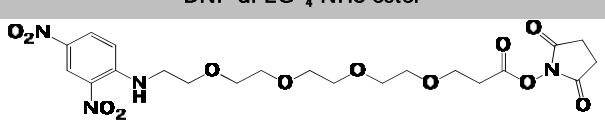
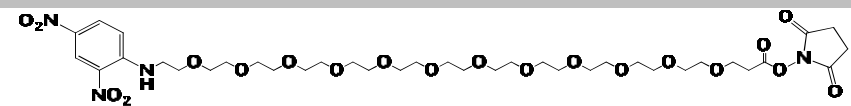
DNP probe applications: These can potentially be used as the DNP label on the probe to which the anti-DNP is being applied, where the probe is amine reactive, including peptides, proteins and oligos/DNA, etc.

Protocol & References:

See Greg T. Hermanson, Bioconjugate Techniques, 2nd Ed, Elsevier Inc., Burlington, MA 01803, April, 2008 (ISBN-13: 978-0-12-370501-3; ISBN-10: 0-12-370501-0). See his Chapter 19 especially in hapten-carrier chemistry and applications, as well as Chapter 18 on Discrete PEG pegylation reagents, with much of the chapter featuring our reagents!

Applications:

Hapten-carrier for anti-DNP antibodies: The DNP-dPEG[®]_x NHS esters can be used to label a carrier such as KLH for generating anti-DNP antibodies. Using the dPEG[®]_x spacers not only eliminate the immunogenicity of conventional activation technologies, they also enhance the labeling capacity on the carrier by adding water solubility inherent in the dPEG[®] spacer. The result will be better more specific anti-DNP antibodies.

Product #	Description	100 mg	1000 mg
10347	DNP-dPEG [®] ₄ -NHS ester	\$200	\$1000
 Mol. Wt.: 530.57; single compound dPEG [®] Spacer is 24 atoms and 27.1 Å			
10399	DNP-dPEG [®] ₁₂ -NHS ester	\$250	\$1250
 Mol. Wt.: 530.57; single compound dPEG [®] Spacer is 24 atoms and 27.1 Å			

DNP-dPEG[®]_x-acid



Product Features and Benefits:

- x = 4 or 12
- Unique dPEG[®] containing pegylation labeling reagent with amine reactivity
- Activate the acid activated in situ, e.g., EDC/NHS
- Vital NEW
- type of label carrier in antibody manufacturer
- Also for placing DNP as a probe diagnostic
- Hydrophilic, water solubilizing and non-immunogenic/non-antigenic spacer
- Using this compound in the applications will reduce or eliminate many problems inherent when using conventional chemistry, e.g., immunoreactivity to spacer, non-specific binding, increases water solubility, etc.

Protocol & References:

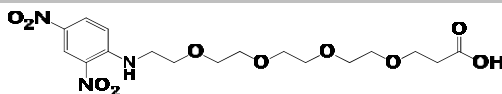
See Greg T. Hermanson, Bioconjugate Techniques, 2nd Ed, Elsevier Inc., Burlington, MA 01803, April, 2008 (ISBN-13: 978-0-12-370501-3; ISBN-10: 0-12-370501-0). See his Chapter 19 especially in hapten-carrier chemistry and applications, as well as Chapter 18 on Discrete PEG pegylation reagents, with much of the chapter featuring our reagents!

Applications:

Hapten-carrier for anti-DNP antibodies: The DNP-dPEG[®]_x acids (also see PN 10347 & 10399, the NHS ester) can be used to label a carrier such as KLH for generating anti-DNP antibodies. Using the dPEG[®] as a spacer not only eliminates the immunogenicity of conventional activation technologies, as well as enhancing the labeling capacity on the carrier by adding water solubility inherent in the dPEG[®] spacer. The result will be better, more specific anti-DNP antibodies.

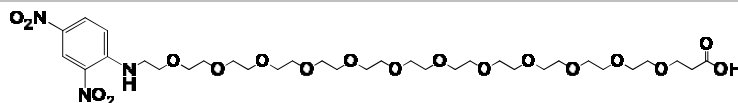
DNP probe applications: This can potentially used as the DNP label on the probe to which the anti-DNP is being applied, where the probe is amine reactive., including peptides, proteins and oligos/DNA, etc.

Product #	Description	100 mg	1000 mg
10346	DNP-dPEG [®] ₄ -acid	\$175	\$900



Mol. Wt.: 431.39; single compound
dPEG[®] Spacer is 16 atoms and 18.0 Å

10398	DNP-dPEG [®] ₁₂ -acid	\$225	\$1125
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Mol. Wt.: 783.82; single compound
dPEG[®] Spacer is 45 atoms and 50 Å