emp BIOTECH

Protein and Oligo Labeling

Dyes for protein and oligonucleotide labeling

excellence made possible

Protein and Oligo Labeling

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Protein and Oligo Labeling

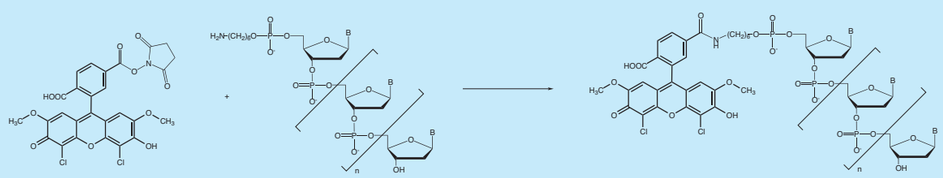
***emp** BIOTECH* is a primary manufacturer of a wide variety of standard and specialty dyes and labels.

Fluorophores are essential for use in a vast array of detection methods but have notoriously inconsistent purity profiles. This can negatively affect its extinction coefficient and the sensitivity of the detection method.

***emp** BIOTECH* manufactures high quality NHS esters for post-synthetic modifications for convenient covalent labeling of nucleic acids at the 5'- or 3'-end. Our products are recognized worldwide for their consistent high purity and quality.

***emp** BIOTECH* manufactures dyes and labels under ISO 9001-certified processes, with strict quality controls to ensure extinction coefficients are above specification requirements. This delivers reliable and consistent fluorophore performance, irrespective of the application.

Fluorophore Activated Esters

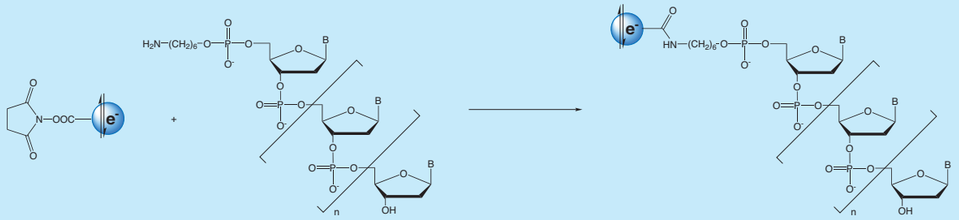


Amino-functionalized oligonucleotides react with succinimidyl ester activated dyes to form conjugates having stable amide bonds.

TECHNICAL NOTE: Before starting the coupling reaction, the oligonucleotide must be lyophilized once with 0.1 M sodium bicarbonate in order to remove residue ammonia ions!

Product	Order No.	Unit Size
MANT-NHS ester Exc.: 325 nm Em.: 412 nm	AF-0401-D005.0-001	5 mg
5-FAM-NHS ester Exc.: 496 nm Em.: 519 nm	AF-0105-D005.0-001	5 mg
	AF-0105-D020.0-001	20 mg
	AF-0105-D100.0-001	100 mg
6-FAM-NHS ester Exc.: 497 nm Em.: 519 nm	AF-0106-D005.0-001	5 mg
	AF-0106-D020.0-001	20 mg
5-TAMRA-NHS ester Exc.: 550 nm Em.: 575 nm	AF-0107-D005.0-001	5 mg
	AF-0107-D020.0-001	20 mg
6-TAMRA-NHS ester Exc.: 549 nm Em.: 572 nm	AF-0108-D005.0-001	5 mg
	AF-0108-D020.0-001	20 mg
6-ROX-NHS ester Exc.: 587 nm Em.: 599 nm	AF-0110-D005.0-001	5 mg
	AF-0110-D020.0-001	20 mg

Biosensoric



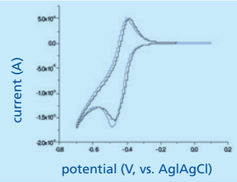
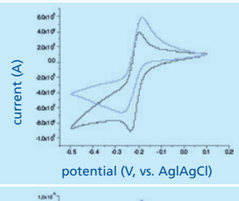
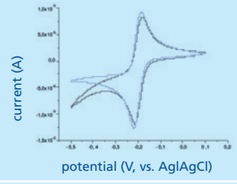
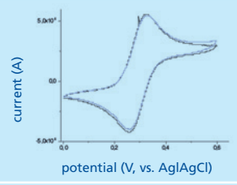
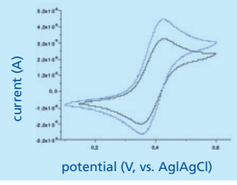
Amino-functionalized oligonucleotides are reacted with succinimidyl ester activated redox labels to form conjugates having stable amide bonds.

TECHNICAL NOTE: Before starting the coupling reaction, the oligonucleotide must be lyophilized once with 0.1 M sodium bicarbonate in order to remove residue ammonia ions!

Product	Order No.	Unit Size
Dicarboxymethylene Blue NHS ester (DCMB-SE)	AF-0201-D005.0-001	5 mg
Monocarboxymethylene Blue NHS ester (MCMB-SE)	AF-0202-D005.0-001	5 mg
Ferrocene carboxylic acid NHS ester (Ferrocene-SE)	AF-0402-D005.0-001	5 mg
Ferrocene-amidopentyl carboxylic acid NHS ester (Ferrocene-C6-SE)	AF-0403-D005.0-001	5 mg
Anthraquinone-2-amidopentyl carboxylic acid NHS ester (AQI-C6-SE)	AF-0405-D005.0-001	5 mg

Additional novel ElectroActive biosensors are currently under development.

Biosensoric

Product Code	Class of Redox Label	Electrode*	Potential Ef (V) vs. Ag/AgCl (1M KCl)	Peak Separation ΔEp (mV) [υ = 0.1 V/s]	Stability of Electrochemistry [20 Cycles]	Cyclic Voltamogram Au Electrode (black) Au-dsDNA-Electrode (blue)
AF-0201	Phenothiazine	Au	-0.216	31	stable	
		Au-dsDNA	-0.222	81	stable	
AF-0202	Phenothiazine	Au	-0.198	29	stable	
		Au-dsDNA	-0.201	31	stable	
AF-0402	Metal Complex	Au	+0.292	55	stable	
		Au-dsDNA	+0.292	58	stable	
AF-0403	Metal Complex	Au	+0.390	59	stable	
		Au-dsDNA	+0.390	57	stable	
AF-0405	Quinone	Au	-0.425	68	stable	
		Au-dsDNA	-0.428	79	stable	

* Au electrode – gold wire; Au-dsDNA electrode – gold wire modified with dsDNA (18 base pairs)

For electrochemical applications, ***emp*** *BIOTECH* now offers a wide variety of ElectroActive biosensors for labeling of biomolecules, specifically nucleic acids, to form labeled probes equipped with redox-active reporter groups.

Amidite Fluorophores and Labels

Product	Order No.	Unit Size
5-Carboxytetramethylrhodamine DMTr-CE-phosphoramidite (5-TAMRA-DMTr-phosphoramidite)	PF-0102-C100.0-001	100 µmol
	PF-0102-D250.0-001	250 mg
6-Carboxytetramethyl-rhodamine DMTr-CE-phosphoramidite (6-TAMRA-DMTr-phosphoramidite)	PF-0103-C100.0-001	100 µmol
	PF-0103-D250.0-001	250 mg
6-Carboxyfluorescein-dipivaloyl CE-phosphoramidite (6-FAM-phosphoramidite)	PF-0104-C100.0-001	100 µmol
	PF-0104-D250.0-001	250 mg
	PF-0104-E001.0-001	1 g

Labels

Product	Order No.	Unit Size
DAPI aqueous solution, 1 mg/mL	F-0410-M001.0-001	1 mL
Hoechst 33342, 20 mM in water	F-0409-M005.0-001	5 mg
Hoechst 33342, 5 mg/mL in water	F-0409-M020.0-001	20 mg

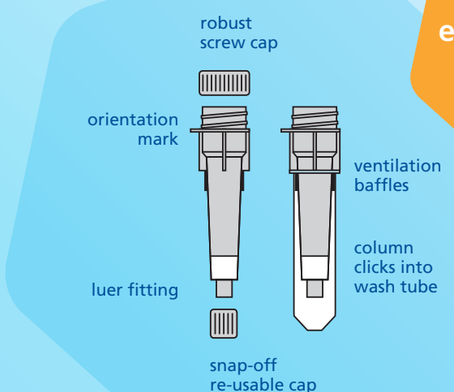
TurboTag™ Labeling Kits

Precision protein labeling kits

10 min. protocol

TurboTag™ Labeling Kits by ***emp*** *BIOTECH* deliver precision labeling and rapid purification of antibodies, enzymes and other proteins. For controlled labeling and purification of proteins having a molecular weight greater than 25 kDa.

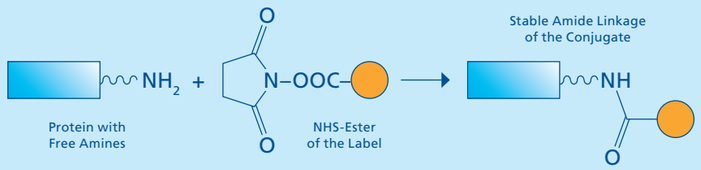
TurboTag labeling kits include the unique emp ZetaSpin Columns for efficient and easy purification



TurboTag™ Labeling Kits

QUICK: Pure, labeled protein in just 10 minutes
EASY: Simply mix, incubate, and purify
PRECISE: Choose and control the degree of labeling of your protein
CONVENIENT: Includes ready-to-use ZetaSpin columns

chemistry



typical workflow

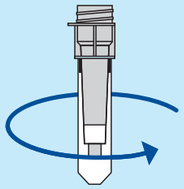
1. buffer protein solution

2. disolve reactive dye

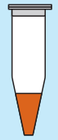
3. mix and incubate 5 min.

4. load the column

5. centrifuge the column



6. conjugate ready to use



– 3 labeling reactions per kit
– Label up to 15 nmol of protein per reaction using covalent NHS-ester chemistry
– Optimized IgG labeling protocols for 100 µg and 1 mg

Fluorescent Dye Data

Fluorophore	Excitation (λmax in nm)	Emission (λmax in nm)	as an alternative to	Product Code
MANT	331	426	AlexaFluor™ 350	MK-F0108
DY-405	405	423		MK-D0113
DY-415	418	467		MK-D0114
DY-485XL	485	560		MK-D0143
DY-490	491	515	AlexaFluor™ 488	MK-D0125
DY-495	497	523		MK-D0109
Fluorescein (FAM)	498	522		MK-F0101 MK-F0103*
DY-481XL	515	650		MK-D0103
DY-521XL	523	668		MK-D0126
DY-530	539	561		MK-D0127
DY-555	547	572	AlexaFluor™ 546	MK-D0128
DY-554	551	572	CY3™, AlexaFluor™ 555	MK-D0101
Tetramethylrhodamine (TAMRA)	557	574		MK-T0102
DY-550	558	578		MK-D0111
DY-547P1	559	575		MK-D0112
DY-549P1	560	575		MK-D0116
DY-590	580	599	AlexaFluor™ 568	MK-D0102
X-Rhodamine (ROX)	587	599		MK-R0103
DY-594	594	615	AlexaFluor™ 594	MK-D0129
Texas Red	595	615		MK-R0102
DY-634	635	658		MK-D0107
DY-633	637	657		MK-D0104
Semper Red 647	647	665		MK-F0102
DY-647P1	652	663	CY5™, AlexaFluor™ 647	MK-D0110
DY-648P1	653	672		MK-D0115
DY-649P1	654	672		MK-D0117
DY-652	654	675		MK-D0118
DYQ-661	662	n/a**		MK-D0105
Methylene Blue (DCMB)	667	696		MK-E0150
DY-677	673	694	CY5.5™, AlexaFluor™ 680	MK-D0119
DY-675	680	699		MK-D0106
DY-682	692	709		MK-D0108
DY-701	706	731		MK-D0120
DY-700	707	730		MK-D0130
DY-734	736	759		MK-D0121
DY-750	747	776	CY7™	MK-D0132
DY-752	748	772		MK-D0123
DY-749P1	759	780		MK-D0122
DY-777	770	788		MK-D0124

* FITC
** Quencher. No Stokes shift.

Terms and Conditions

For conducting business with ***emp** BIOTECH*, please review our general terms and conditions as listed on our website **www.empbiotech.com**.

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***emp** BIOTECH* is ISO 9001:2015 and 13845:2016 certified.
Registration number 011001300789 (TÜV Rheinland)

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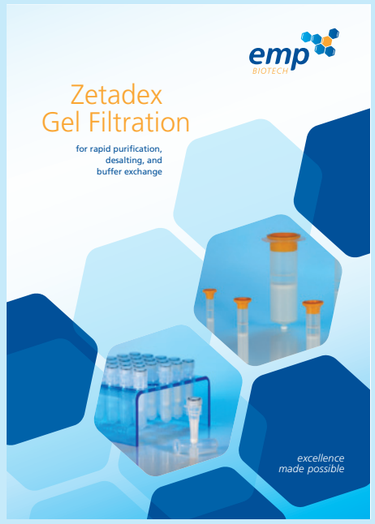

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for rapid purification, desalting, and buffer exchange

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