Polysciences, Inc.
Chemistry beyond the ordinary

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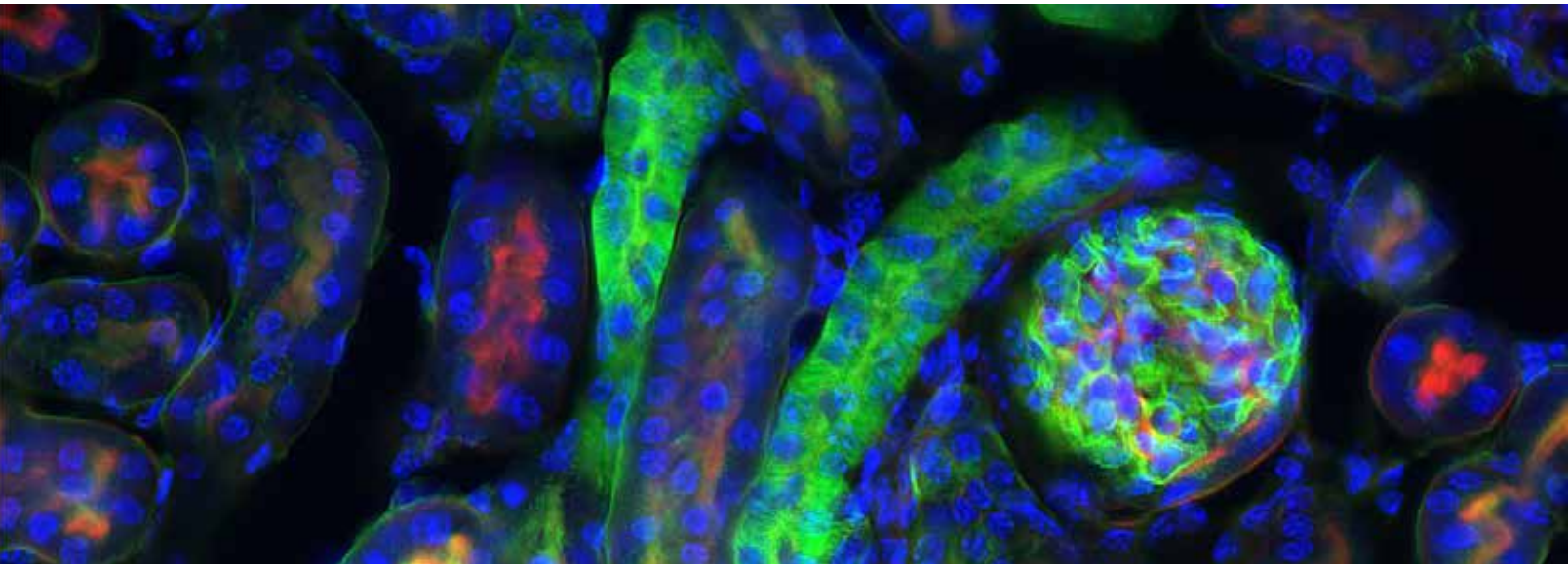
Molecular Biology



Mouse Kidney cells were stained with DAPI, Alexa Fluor® 488 wheat germ agglutinin, Alexa Fluor® 568 phalloidin.
Contributed by Walt Metcalfe, Molecular Probes, Inc.; photographed by Gregg Jarvis, Omega Optical, Inc.

- Affinity Chromatography
- Commonly used Reagents
- Dyes and Stains
- Gel Electrophoresis
- Probes
- Charged Microscope Slides

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Molecular Biology

Dyes & Stains

	Catalog #	Size
Acridine Orange, C.I. 46005, very high purity [65-61-2] *HU5e*	04539-500	500 mg
	04539-5	5 g

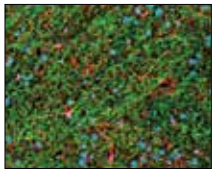
(3,6-Bis[dimethylamino]acridine hydrochloride hydrate) MW 301.83
DNA intercalating dye. A grade of acridine orange of exceptionally high purity, suitable for quantitative work. Free of inorganic salts. A specific stain for RNA, used as a 2% solution containing 1% lanthanum acetate in 15% acetic acid. λ max 494 ± 4nm
J. Histochem. Cytochem., 22, 495 (1974); 31, 737 (1983); 44, 393 (1996); 49, 921 (2001); J. Lab Med., 15(3), 180 (1984)

2% Acridine Orange, Ready-to-Use [65-61-2] *HU5d*	24603-10	10 ml

Ultrapure DNA intercalating dye. A grade of acridine orange of exceptionally high purity, suitable for quantitative work. Ready-to-use and free of inorganic salts. A specific stain for RNA, used as a 2% solution. Ready-to-use format eliminates the exposure to potentially irritating powdered dyes.
J. Histochem. Cytochem., 22, 495 (1974); 31, 737 (1983); 44, 393 (1996); 49, 921 (2001) J. Lab Med., 15(3), 180 (1984)

Bisbenzimide (Hoechst 33258) [23491-45-4] *H4abd*	09460-100	100 mg

(2′-[4-Hydroxyphenyl]-5-[4-methyl-1-piperazinyl]-2,5′-bi-1H-benzimidazole trihydrochloride pentahydrate; Hoechst 33258) MW 623.97 $C_{27}H_{37}Cl_3N_6O_4$
Fluorescent chromosome stain. Recommended use is 10mg/ml for 2 – 10 minutes. This will vary based on section thickness.
Science, 220, 620 (1983), Anal. Biochem., 179, 401 (1989)



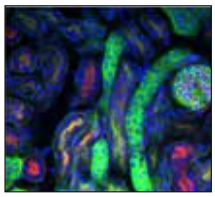
Rat Brain Sagittal, 8 micrometer section, stained with Hoechst 33342, Alexa Fluor 568-6FAP (Rb) and Alexa Fluor 488-NF-P (Ms). Photo: Mike Davidson of Florida State University

Cuprolinic blue (Quinolinic phthalocyanine) [41276-95-3] *U7ad*	17052-100	100 mg
	17052-500	500 mg

MW 1,084.54
Intensely blue cationic dye used for the visualization of RNA and other polynucleotides. Stain (microwave) used for enteric neurons. Can also used as a counterstain in immunoperoxidase procedures.
Histochem. J., 15, 801 (1983); 15, 1113 (1983); Biotechniques, 7, 692 (1989)

4′,6-Diamidino-2-phenylindole dihydrochloride (DAPI) [28718-90-3] *U3acd*	09224-10	10 mg
	09224-50	50 mg

MW 350.25
A cationic fluorescent dye which specifically binds to adenine-thymine-rich DNA. Applications include detection of nanogram quantities of DNA in cellular homogenates, and cytofluorometric determination of the DNA base content in human chromosomes. *Available in bulk quantities for OEM users at significant savings.* λ max: 342nm Technical Data Sheet #444
Nature, 253, 461 (1975); Anal. Biochem., 92, 497 (1979); Stain Technol., 60, 7 (1985); Eur. J. Biochem., 182, 437 (1989)



Mouse Kidney cells were stained with DAPI, Alexa Fluor® 488 wheat germ agglutinin, Alexa Fluor® 568 phalloidin. Contributed by Walt Metcalfe, Molecular Probes, Inc.; photographed by Gregg Jarvis, Omega Optical, Inc.

Hydroethidine™ (Dihydroethidium bromide) [104821-25-2] *HU5cd*	17084-50	50 mg

MW 315.5 mp 202 – 206°
Reduced ethidium bromide. A vital stain. Enters and stains living cells without cellular trauma. Double staining system. Stains cytoplasm blue and chromatin red. Excellent cellular retention. Remains incorporated in chromatin with virtually no leakage. Essentially non-toxic. Shows no toxicity at levels useful for visualizing chromatin. Em. max: 420nm Ex. max: 365nm Technical Data Sheet #351
Biotechnology, 3, 4 (1985)

Lissamine Rhodamine B sulfonyl chloride, ~99% [62796-29-6] *H3g*	08074-100	100 mg

MW 577.1
Fluorescent protein stain with bright orange fluorescence. Used to visualize actin filaments in living amoebas. Useful for waste water testing and various microbiological applications.
J. Cell. Biol. 86, 590 (1980)

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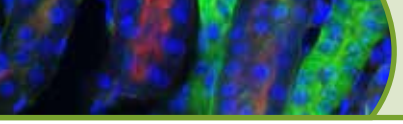
	Catalog #	Size
Mithramycin [18378-89-7] *VWX7f* (Plicamycin; Aureolic acid; Mithracin) MW 1,085.18 mp 180 – 183° Fluorescent DNA dye. *Stain Technol., 60, 145 (1985); Merck Index 11, 7510*	09330-5	5 mg
Naphthalene-2,3-dicarboxaldehyde [7149-49-7] *HY4g* MW 184.19 mp 131 – 133° Highly Purified Grade-single spot TLC Fluorogenic derivatizing agent for amines. Useful for fluorescent determination of serum arginine and for trace amino acid and peptide analysis.	21486-100	100 mg
Nitroblue tetrazolium chloride (NBT) [298-83-9] *HU6ae* MW 817.65 mp 215 – 217° Used for estimating dehydrogenases and other oxidases. Also used in the detection of nucleic acid hybridization and in the detection of ascorbate peroxidase activity in native gels. Totally soluble and formazan free. *Methods Enzymol., 6, 958 (1963); Anal. Biochem., 56, 353 (1973); 212, 540 (1993), J. Clin. Lab. Anal., 7, 174 (1993)*	00928-500 00928-1	500 mg 1 g
Osmium ammine-B [48016-91-7] *U5g* Stable DNA stain. *J. Histochem. Cytochem., 37, 395 (1989)*	21033-100	100 mg
Propidium iodide [25535-16-4] *HVWX6g* MW 668.41 mp 220 – 225° Fluorescent marker. Used as a nuclear counterstain and for In situ Hybridization (ISH). λ max: 493nm *J. Histochem. Cytochem., 35, 123 (1987)*	03748-100	100 mg
Rhodamine B isothiocyanate, mixture of isomers [36877-69-7] *U5g* MW 536.1 Fluorescent marker for proteins. Also used as a counterstain in conjunction with FITC. *J. Bacteriol., 83, 1358 (1962); Arch. Biochem. Biophys., 133, 263 (1969)*	00374-250	250 mg
Toluidine Blue O, C.I. 52040, certified [92-31-9] *U5g* MW 305.83 A metachromatic, cationic thiazine dye that is widely used in in vitro biological applications. Also used in techniques for DNAase detection. λ max: 626nm *Stain Technol., 18, 35 (1943); 38, 281 (1963); J. Clin. Microbiol., 21, 195 (1985); Arch. Surg., 95, 16 (1967)*	01234-25	25 g
Toluidine Blue O, C.I. 52040, purified [92-31-9] *U5g* MW 305.83 Useful for staining RNA, oligodeoxynucleotides, proteins and glycosaminoglycans, skin lesion for Mohs. λ max: 626nm *Nature, 213, 1133 (1967); Anal. Biochem., 46, 156 (1972)*	15931-10	10 g

General Reagents

Guanidine Isothiocyanate Solution, 4M [593-84-0] $NH_2C(=NH)NH_2 \bullet HSCN$ Used in purification of RNA. *Beilstein Registry #3563461*	25070-500	500 ml
Guanidine Isothiocyanate, Ultrapure [593-84-0] $CH_5N_3 \bullet HSCN \bullet H_2O$ Purity: 99.0% pH: (1M in water) 5.0-7.0 Used to isolate RNA from sources like pancreas and high molecular DNA from procaryotic organisms that require strong enzyme detergent lysis and organic treatment. Strong protein denaturant when used in high concentrations.	25071-500	500 g

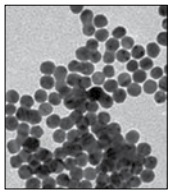


Molecular Biology

Probes

	Catalog #	Size
Amine Terminated Polymer Coated Nanoparticles		
15nm	24876-1	1 ml
20nm	24877-1	1 ml
30nm	24878-1	1 ml
Carboxyl Terminated Polymer Coated Nanoparticles		
15nm	24870-1	1 ml
20nm	24871-1	1 ml
30nm	24872-1	1 ml
Methyl Terminated Polymer Coated Nanoparticles		
15nm	24879-1	1 ml
20nm	24880-1	1 ml
30nm	24881-1	1 ml
Neutravidin Terminated Polymer Coated Nanoparticles		
15nm	24873-1	1 ml
20nm	24874-1	1 ml
30nm	24875-1	1 ml

Mercaptyalkyl PEG Gold Nanoparticles — 24688-5 — 5 ml
Nanoparticle conjugate. Technical Data Sheet #787
A.G. Kanaras, F.S. Kamounah, K. Schaumburg, C.J. Kiely, M. Brust. Thioalkylated tetraethylene glycol: a new ligand for water soluble monolayer protected gold clusters. Chem. Comm. 2002, 20, 2294.



Naked Gold Nanoparticles *CH4g* — 24689-5 — 5 ml
5 – 8nm bare gold nanoparticles in toluene stabilized by loosely adsorbed tetraoctylammonium bromide.
M. Brust, D. Bethell, D.J. Schiffrin, C. Kiely. Novel Gold-Dithiol Nano-Networks with Non-metallic Electronic Properties. Adv. Mater. 1995, 7, 795. M. Brust, D. Bethell, C. J. Kiely, D. J. Schiffrin. Self-Assembled Gold Nanoparticle Thin Films with Non-M

Chloroauric acid [16961-25-4] *H5bd* — 00395-1 — 1 g
MW 393.8 d 3.90
Used for production of colloidal gold solutions.

Colloidal Gold Solution, 0.005%, 15-25nm *U2w* — 09285-50 — 50 ml
Colloidal gold has been widely used to make bioconjugate probes for labeling and visualizing biologic specimens via light and electron microscopy. Most proteins can be easily coupled to colloidal gold particles with retention of the bound protein's biological activity.
Technical Data Sheet #787

Molecular Biology

Unconjugated gold colloid (GC) *A2dmw*
PolyGold reagents are of the highest quality and can be relied upon to give reproducible results. For TEM studies, the most convenient sizes of gold particles are 5nm, 10nm and 15nm. The long shelf life (12 months when stored at 4° C) makes the use of these reagents economical. Resolution of most SEMs is such that immunolabeling studies require either the use of larger sized gold particles or enhancement of smaller gold particles using silver enhancement (deposition) technology. Accordingly, the gold colloids listed below include 20nm, 30nm and 40nm particles for direct visualization in the SEM.

Benefits:

- High specificity
- Low clustering – agglomeration of gold particles is minimal, over 85% of particles being singlets
- Discrete particle sizing – narrow particle size distribution allows double labeling to be achieved

	Catalog #	Size
10nm	22717-100	100 ml
15nm	22718-100	100 ml
20nm	22719-100	100 ml
40nm	22720-100	100 ml
5nm	22716-100	100 ml
60nm	22703-100	100 ml

Gel Electrophoresis

Acrylamide, Chemzymes Ultra Pure® [79-06-1] *HMO6d* . . . . . 00019-100 100 g
00019-500 500 g
MW 71.08 mp 84-85° uninhibited 165° TSCA $H_2C=CHCONH_2$
Specific conductance of 35% (w/v) solution 2μmho/cm. Used in electrophoresis for separation of nucleic acid fragments and proteins. For introduction of hydrophilic sites, preparation of water-soluble polymers and in electrophoresis. Technical Data Sheet #155

Acrylamide/Bis (Pre-mixed Powder) *HMO6d*
The convenience and safety of premixed acrylamide and methylenebisacrylamide is now available with Polysciences' high quality standards. Acrylamide *(Cat. #00019)* and N,N'-methylene bisacrylamide *(Cat. #00719)* are combined in a readily soluble form in exact proportions. Each batch is pretested. Each unit (bottle) contains 30 grams of solids. Add deoinized water to the graduated bottle to make 100ml or 30% stock solution and store for 1 month at 4° C. No handling of toxic powders required. 30% (wt./vol.) acrylamide/bisacrylamide.
Technical Data Sheet #479

(19:1)	17452-6	6 x 30 g
(29:1)	19847-30	30 g
	19847-6	6 x 30 g
(37.5:1)	17451-30	30 g
	17451-6	6 x 30 g

Molecular Biology

	Catalog #	Size
Agarose, Molecular Biology Grade *A2g*	23689-50	50 g
	23689-100	100 g

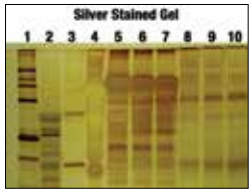
Agarose is a natural complex polysaccharide isolated from agar or agar-bearing marine algae. It forms a clear gel matrix that is very useful for electrophoresis, immuno-electrophoresis and immunodiffusion. It is ideally suited for electrophoretic separation of proteins and nucleic acids and for PCR product analysis.

Applications:

- DNA restriction fragment separation
- PCR product separation
- Southern and Northern blotting
- Pulsed field electrophoresis
- Immunoelectrophoresis
- Laurell rocket
- Immunodiffusion
- Protein electrophoresis
- Gelling temp. 35 – 40° C
- Melting temp. 86 – 90° C
- Sulfate content Gel strength >1000 g/cm^2 (1%)

ElectroPure™ Silver Stain Kit *BHMV7g* — 16717-1 — 1 kit

Silver staining is a highly sensitive method for detecting proteins in polyacrylamide slab gels. Most silver staining protocols are time consuming, complicated, and dependent upon the purity of the reagents. Polysciences' Silver Stain Kit is simple, stable, controllable, and very rapid. Our method is sensitive to proteins in the nanogram range and may be used either before or after Coomassie blue staining. Staining for proteins is initiated in an alkali environment. Protein amino groups as well as cysteine and methionine sulfur groups are complexed with silver cations. Technical Data Sheet #293



Gel stained with Silver Stain Kit.

Kit Contains:

- Sodium Hydroxide, Formaldehyde, Ammonium Hydroxide, Silver Nitrate and Citric acid

Ethidium bromide [1239-45-8] *H5g* — 04033-5 — 5 g

(Homidium bromide; 3,8-Diamino-5-ethyl-6-phenylphenanthridium bromide;2,7-diamino-10-ethyl-9-phenylphenanthridium bromide) MW 394.32 mp 260 – 262° (dec.)
Intercalates double-stranded nucleic acids; frameshift mutagen; fluorescent stain for nucleic acids in electrophoresis; used for DNA quantitation.
J. Mol. Biol., 47, 419 (1970); Ann. Rev. Biochem., 44, 273 (1975); Dev. Biol., 108, 325 (1985)

Glycerol, USP (Glycerine) [56-81-5] *A2g* — 00084-100 — 100 g; 00084-1 — 1000 g

MW 92.09 bp 182°/20mm
Used as cryoprotectant to help prevent ice crystal damage to specimens. Substrate for the assay of glycerol dehydrogenase, glycerol oxidase, and glycerokinase.
Methods Enzymol., 1, 397 (1955); 42, 148 (1975); 89, 243 (1982)

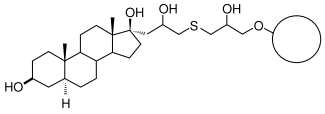
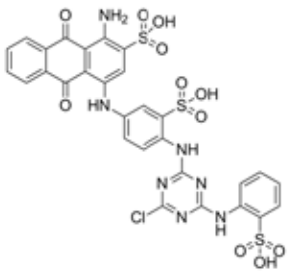
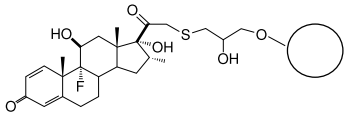
N,N'-Methylenebisacrylamide, Chemzymes®; Ultra Pure, Purity >99% [110-26-9] *HV6d* — 00719-25 — 25 g; 00719-100 — 100 g

MW 154.17 mp 300° TSCA $(H_2C{=}CHCONH)_2CH_2$
High purity crosslinking monomer used for precision PAGE. Also suitable for UV scanning gels. Crosslinking monomer used especially with acrylamide. Purity >99% Conductivity of 2% soln/ <5mmho Technical Data Sheet #479

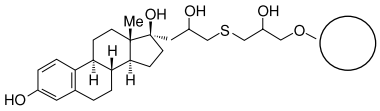
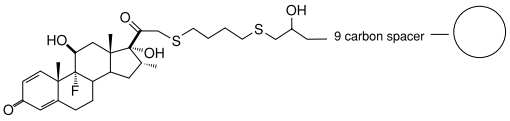
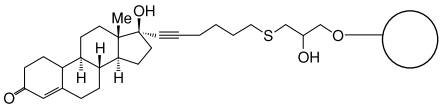
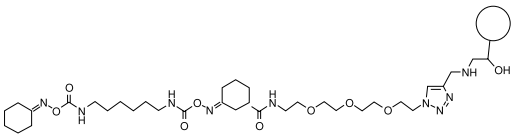
Molecular Biology

	Catalog #	Size
N,N,N′,N′-Tetramethylethylenediamine, Chemzymes Ultra Pure® (TEMED) [110-18-9] *BCH6g* . . . . . MW 116.21 bp 120 – 122° Polymerization accelerator with ammonium persulfate or riboflavin initiation. Supplied in N2 sealed ampoules. *Anal. Biochem., 35, 533 (1970); 74, 620 (1976)*	08036-10	10 x 5 ml
PolyPAGE-40 Acrylamide/Bis Liquid Solutions *HMO6d* By varying the monomer (acrylamide) and crosslinker (bisacrylamide) concentrations in a polyacrylamide gel, one can optimize the pore size of the gel to give the best separation and resolution for your specific molecule. Polysciences offers the following convenient ready to use liquid formulations. Each PolyPAGE-40 product is specially produced to ensure maximum stability and shelf life and is guaranteed for 3 years.		
19:1 solution	24170-100	100 ml
	24170-6	6 x 100 ml
29:1 solution	24169-100	100 ml
	24169-6	6 x 100 ml
37.5:1 solution	24165-500	500 ml
	24165-100	100 ml
	24165-6	6 x 100 ml
Stains-all [7423-31-6] *H5g* . . . . . (1-Ethyl-2-[3-(1-ethylnaphtho[1,2-d]thiazolin-2-ylidene)-2-methylpropenyl]naphtho[1,2-d]thiazolium bromide, 3,3′-Diethyl-9-methyl-4,5,4′,5′-dibenzothiacarbocyanine) MW 559.6 $C^{30H}27BrN^{2}S^{2}$ Stains proteins red, DNA blue, and RNA bluish-purple. Also useful for staining acid polysaccharides. *Biochim. Biophys. Acta, 264, 73 (1972); Anal. Biochem., 29, 421 (1969); 56, 43 (1973); J. Histochem. Cytochem., 22, 1169 (1974)*	03943-1	1 g
	03943-5	5 g
Trichloroacetic acid, 98% [76-03-9] *BK4d* . . . . . Protein precipitant and fixative. Used in fixing solutions for PAGE and IEF gels.	01241-250	250 g

Affinity Chromatography

Androstan Sepharose® 6B Novel Immobilized Steroid Beads *CH7d* . . . . . Typical ligand loading 10 – 14 μmoles/mL bead. 	24858-1	1 ml
New! Cibacron Blue, F3GA, C.I. 61211, Affinity Chromatography Grade [12236-82-7] *U5g* (Reactive Blue 2) MW 774.16 Sulfonated triazine dye that can be immobilized on a support matrix and used for affinity chromatography of proteins. Also used for probing nucleotide binding sites in proteins. 1H NMR and mass spectrometry data are consistent with the structure shown. *Meta and para sulfonic acid F-ring isomers available on request. Call for quote.* Appearance: Powder *Methods Enzymol., 80, 754 (1981); Biochem. Biophys. Res.* 	25721-1	1 g
	25721-5	5 g
	25721-100	100 g
Dexamethasone Sepharose® 6B Novel Immobilized Steroid Beads *CH7d* . . . . . Typical ligand loading 10 – 14 μmoles/mL bead. 	24859-1	1 ml

Molecular Biology

	Catalog #	Size
Estradiol Sepharose® 6B Novel Immobilized Steroid Beads *CH7d* . . . . . Typical ligand loading 10 – 14 µmoles/mL bead. 	24861-1	1 ml
Long Spacer Arm Dexamethasone Sepharose® 6B Novel Immobilized Steroid Beads *CHU4d* Typical ligand loading 10 – 14 µmoles/mL bead. 	24869-1	1 ml
Nortestosterone Sepharose® 6B Novel Immobilized Steroid Beads *CH7d* . . . . . Typical ligand loading 10 – 14 µmoles/mL bead. 	24860-1	1 ml
RHC-80267 (U-57908) Sepharose® 6B Novel Immobilized Steroid Beads *CHU4d* . . . . . Typical ligand loading 12 – 15 µmoles/mL bead. Use to purify diacylglycerol (DAG) lipases. 	24868-1	1 ml

Microscope Slides

	Catalog #	Size
Tissue Tack™ Microscope Slides – Plus (+) Glass . . . . . Treated with a specially formulated aminoalkylsilane, Tissue Tack slides provide a positively charged surface, which permits instant coupling of negatively charged tissue sections. The resultant bond stands up to the very aggressive solutions used in In-Situ Hybridization procedures. Slides are available with a white label. Technical Data Sheet #518 	24216-1	72 slides