

# Glossary

B. MECHTOLD and A. RADBRUCH

**Absorption:** The taking up of light, sometimes only of certain wavelengths (absorption wavelength) and transforming it either to other forms of energy or to light of other wavelengths (fluorescence).

**Acquisition:** The recording of data in flow cytometry.

**Alignment microscope:** Serves to monitor the nozzle, flow stream, and breakoff point, as illuminated by a stroboscope in drop-drive frequency, to measure distances (=time) between laser interception and breakoff point, and to calculate the drop delay.

**Anticoincidence circuit:** If cells pass the point of analysis at too short a distance, both cells can give an artificial signal, or the second cell is not measured correctly because the system is not yet ready (analysis abort). For cell sorting, cells following each other too closely to be packed into independent droplets, or differentially sorted droplets, may be included for the sake of recovery, or not, for optimal purity (sort abort).

**Allophycocyanin (APC):** A fluorescent phycobiliprotein isolated from the cyanobacterium *Anabena variabilis*. The peak of fluorescence emission is 660 nm; the peak of absorption is close to 650 nm. For flow cytometry it can be excited by dye lasers (ca. 560 nm) or helium/neon lasers (632 nm).

**Argon laser:** The most frequently used illuminating light source in flow cytometry. Useful for UV excitation of Hoechst dyes (DNA of live cells, bromodeoxyuridine/Hoechst quenching) and indo-1 measurements: useful for excitation of most immunofluorescence dyes, propidium iodide (DNA), and fluo-3 (Ca flux) with 488-nm blue light; sometimes also used for pumping dye lasers with 514-nm light.

**Autofluorescence:** Endogeneous fluorescence, a problem with fibroblasts and fixed cells, can be compensated by measuring it as an independent parameter.

**Bandpass filter (BP):** An optical filter transmitting a small spectral range of light.

**Barrier filter:** An optical filter blocking a small spectral range.

**Channel:** The numeric value of a parameter, i.e. the digitalized signal intensity. The range is 256–1024 channels.

**Cluster designation (CD):** The nomenclature for leukocyte surface antigens. Listed in : Leucocyte typing IV by W. Knapp, Oxford University Press, 1989 and a poster by Janssen Biochimica, Belgium.

**Compensation:** The subtraction of cross-talk between photodetectors.

**Contour plot:** A plot showing two parameters coordinated, with contour lines circumventing areas containing equal densities of events in linear, log, or probability fashion.

**Coefficient of variation (CV):** The standard deviation (channel number) divided by the mean fluorescence of the fluorescence distribution, x 100.

**Dichroic mirror (DC):** A mirror which transmits and reflects light according to wavelength.

**Dot plot:** A plot showing two parameters coordinated, with each event plotted as a dot according to the intensity of the parameters.

**Drop delay:** Distance (time) required by a cell to fly from the point of analysis to the breakoff point, i.e., from analysis to sorting, in flow-in-air sorters.

**Fluorescence:** The property of molecules to absorb light of a particular wavelength and emit light of a longer wavelength.

**Forward scatter (FSC):** Light scattered by a cell in the direction of the excitation light beam as the cell passes the beam.

**Gate:** Intensity thresholds defining a region of intensity of a particular flow cytometric parameter, used for further analysis or sorting.

**HeCd laser:** Helium-cadmium ion laser.

**Live gate:** A gate set for the recording of cells.

**Longpass (LP):** An optical filter blocking all light shorter than a certain wavelength

**Mean:** The sum (arithmetic, linear amplification)) or product (geometric, logarithmic amplification) of all signals, divided by the number of signals.

**Median:** The channel at which 50% of cells lie below and 50% above.

**Orthogonal light scatter:** Light scattered to the side (see forward scatter).

**Peltier element:** An electronic element generating a temperature gradient from current. Useful for controlling temperature in flow, e.g., to cool cells.

**Photomultiplier tube (PMT):** A photodetector, with photons generating a cascade of electrons to generate a measurable current.

**Propidium iodide (PI):** A red-fluorescent dye staining DNA; a marker for dead cells because it is excluded quantitatively by live cells.

**Piezoelectric:** An electronic element converting electronic frequencies into mechanical vibrations of the same frequency. Used to generate a stable breakoff point and a defined number of droplets in flow-in-air systems.

**Shortpass (SP):** An optical filter that blocks all light of wavelengths longer than a particular wavelength.

**Side scatter (SSC):** Light scattered to the side as the cell passes through the laser beam.

**Threshold trigger:** The minimum signal intensity to trigger data processing.

# List of Suppliers

B. MECHTOLD

## Suppliers

**Aldrich-Chemie GmbH & Co. KG**  
Postfach 1120  
Riedstr. 2  
W 7924 Steinheim  
Tel.:0049. 7329. 87-110 0130. 7272  
FAX:0049. 7329. 87-139

**Bachem Biochemica GmbH**  
Lessingstr. 26  
W 6900 Heidelberg 1  
Tel.:0049. 6221. 163091  
FAX:0049. 6221. 21442

**Bachem Bioscience INC.**  
3700 Market St.  
Philadelphia PA 19104, USA  
Tel.:001. 215. 387-0011  
FAX:001. 215. 387-1170

**Balzers GmbH**  
Fürstentum Liechtenstein  
Tel.: 075. 44111

**Becton Dickinson GmbH**  
Tullastr. 8-12  
W 6900 Heidelberg 1  
Tel.:0049. 6221. 305-0  
FAX:0049. 6221. 305-216

**Becton Dickinson  
Immunocytometry Systems**  
2350 Qume Dr.  
San Jose CA 95131-1807, USA  
Tel.:001. 408. 432-9475  
FAX:001. 408. 954-2009

**Boehringer Mannheim GmbH**  
Biochemica  
Postfach 310120  
Sandhofer Str. 116  
W 6800 Mannheim 31  
Tel.:0049. 621. 759-8545  
FAX:0049. 621. 759-8509

## Products

Dyes and chemicals

Biochemicals

s.a.

Interference filters

Flow cytometers:  
(FACSort, FACStar  
FACStrack, and FACScan)  
and antibodies

s.a

Biochemicals and antibodies

**Suppliers****Products****Boehringer Mannheim Biochemicals**

P. O. Box 50414  
9115 Hague Rd.  
Indianapolis IN 46250-0414, USA  
Tel.:001. 317. 849-9350  
FAX:001. 317. 576-4065

s.a.

**Calbiochem Novabiochem GmbH**

Postfach 1167  
Lisztweg 1  
W 6232 Bad Soden/TS  
Tel.:0049. 6196. 63955  
FAX:0049. 6196. 62361

Antibodies, biochemicals, and  
Hoechst dyes**Calbiochem Corporation**

P. O. Box 12087  
San Diego CA 92112-4180, USA  
Tel.:001. 619-450-9600  
FAX:800-776-0999

s.a.

**Coherent, Inc.**

Laser Products Div.  
3210 Porter Dr.  
Palo Alto, CA 94304, USA  
Tel.:001. 415. 493-2111

Laser manufactures

**Coulter Electronics GmbH**

Postfach 547  
Gahlingspfad 53  
W 4150 Krefeld 1  
Tel.:0049. 2151. 818-180  
FAX:0049. 2151. 802-000

Flow cytometers:  
(EPICS, Profile, and ELITE)  
and antibodies**Cyanotech Corporation**

P. O. Box 4384  
Kailua-Kona HI 96745, USA  
Tel.:001. 808. 326-1353  
FAX:001. 808. 329-3597

Antibodies and phycobiliproteins

**Dow Elanco**

Derquinter 92  
B 2018 Antwerpen, Belgium  
Tel.:03.247-4225

Antimitotic agents

**DUNN Labortechnik GmbH**

Postfach 1104  
Zurheiden 6  
W 5464 Asbach  
Tel.:0049. 2683. 43306  
FAX:0049. 2683. 42776

Dyes and antibodies

**Elanco Products Company → Eli Lilly  
Eli Lilly and Company → Dow Elanco**

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<b>Eppendorf Gerätebau Netheler + Hinz GmbH</b> Postfach 650670 Barkhausenweg 1 W 2000 Hamburg 65 Tel.:0049. 40. 53801-0 FAX:0049. 53801-556	Laboratory equipment
<b>Erbslöh</b> Kaiserstr. 5 W 4000 Düsseldorf Tel.:0049. 211. 39001-0 FAX:0049. 211. 39001-21	Nylon gaze
<b>EXCITON, Inc.</b> P. O. Box 31126 Overlook Station, Dayton Ohio 45431, USA Tel.:001. 513. 252-2989 FAX:001. 513. 258-3937	Antibodies
<b>Falcon → Becton Dickinson</b>	Tissue culture, tubes and others
<b>Fisher Scientific Company</b> Pittsburgh - Pennsylvania USA Tel.:001. 412. 963-3300	Chemicals
<b>Flow → Serva</b>	
<b>Flow Cytometry Standards Corporation</b> P. O. Box 12621 Research Triangle Park NC 27709, USA Tel.:919. 967-9345 FAX:919. 967-7325	Calibration particles (beads)
<b>Fluka Feinchemikalien GmbH</b> Postfach 1346 Messerschmittstr. 17 W 7910 Neu-Ulm Tel.:0049. 31. 70111 0130. 2341 FAX:0049. 731. 75044	Chemicals
<b>Fluka Chemical Corporation</b> 980 So. Second St. Ronkonkoma NY 11779-7238, USA Tel.:516. 467-0980 FAX:516. 467-0663	s.a.
<b>Gibco BRL AG</b> Postfach 1212 Dieselstr. 5 W 7514 Eggenstein-Leopoldshafen 1 Tel.:0049. 721. 7804-0 FAX:0049. 721. 780499	Biochemicals

**Suppliers****Products****Gibco BRL**

Life Technologies INC.  
3175 Staley Rd.  
Grand Island NY 14072, USA  
Tel.:001. 716. 773-0700  
FAX:800. 331-2286

s.a.

**Gurr**

BDH Laboratory Supplies  
Broom Road  
Poole BH12 4 NN, England  
Tel.:202. 745520  
FAX:-202. 745520

Dyes

**Heraeus Instruments GmbH**

Produktbereich Thermotech  
Postfach 1563  
Heraeusstr. 12-14  
W 6450 Hanau 1  
Tel.:0049. 6181. 35-5190  
FAX:0049. 6181. 35-784

Laboratory equipment

**IBL Research Products INC.**

67 Rogers St.  
Cambridge MA 02142, USA  
Tel.:617. 868-0077  
FAX:617. 661-6341

Antibodies

**Immunotech (Dianova-Immunotech)**

Postfach 101705  
Raboisen 5  
W 2000 Hamburg 1  
Tel.:0049. 40. 323074  
FAX:0049. 40. 322190

Antibodies

**Immunotech S.A.**

Luminy case 915  
F 13009 Marseille cedex 9, France  
Tel.:0033. 91758200  
FAX:0033. 91412794

Antibodies

**Janssen Biochimica**

J. Pharmaceuticaaan 3  
B 2440 Geel, Belgium  
Tel.:0032. 14. 604290  
FAX:0032. 14. 604220

Biochemicals

**Labomatic GmbH**

Postfach 469  
W 6920 Sinsheim  
Tel.:0049. 7261. 64903

Silicon and tygon tubes

**Laseroptik GmbH**

W 3008 Garbsen 8  
Tel.:0049. 5131. 2188

Optical supply:  
Special surface of filters

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<b>Merck, E.</b> Postfach 4119 Frankfurter Str. 250 W 6100 Darmstadt 1 Tel.:0049. 6151. 72-0 FAX:0049. 6151. 72-7521	Biochemicals
<b>Millipore GmbH</b> Hauptstr. 71-79 W 6236 Eschborn Tel.:0049. 6196. 494-0 FAX:0049. 6196. 43901	Equipment for filtrations of gases and fluids
<b>Miltenyi Biotec GmbH</b> Friedrich-Ebert-Str. 68 W 5060 Bergisch Gladbach 1 Tel.:0049. 2204. 8096 FAX:0049. 2204. 85197	Magnetic cell sorters (MACS), beads, and columns
<b>Molecular Probes INC.</b> 4849 Pitchford Ave. Eugene OR 97402, USA Tel.:001. 503. 344-3007 FAX:001. 503. 344-6504	Biochemicals and antibodies
<b>Monyl</b> Zurich Bolting Cloth Mfg. Co. Ltd. Ch 8803 Rüschnikon Switzerland	Nylon gaze
<b>Newport Corporation</b> 18235 Mt. Baldy Cir. P. O. Box 8020 Fountain Valley, CA 92728-8020, USA Tel.:001. 714. 963-9811	Optical supply: optical tables and mounts
<b>Omega Optical INC.</b> 3 Grove St. P. O. Box 573 Brattleboro, VT 05301, USA Tel.:001. 802. 254-2690	Interference filters
<b>Oriel GmbH (LOT)</b> Im Tiefen See 58 W 6100 Darmstadt Tel.:0049. 6151. 82076(8806-0) FAX:0049. 6151. 419602 (84173)	Optical supply: Arc lamp systems and power supplies
<b>Ortho Diagnostic Systems GmbH</b> c/o Dr. Molter GmbH Postfach 1320 Karl-Landsteiner Str. 1 W 6903 Neckargemünd Tel.:0049. 6223. 77-0 FAX:0049. 6223. 77-278	Flow cytometers: (CYTORON) and antibodies



**Suppliers**

**Ortho-Mune Monoclonal Antibody**  
Div. Ortho Diagnostic Systems Inc.  
Route 202  
Raritan NJ 08869, USA  
Tel.:001. 201. 218-1300  
FAX:001. 201. 218-8582

**Pall Filtrationstechnik GmbH**  
Postfach 102120  
Philipp-Reis-Str. 6  
W 6072 Dreieich 1  
Tel.:0049. 6103. 307-0  
FAX:0049. 6103. 34037

**Partec GmbH**  
Hüferstr. 73-79  
W 4400 Münster  
Tel.:0049. 251. 80078  
FAX:0049. 251. 82979

**Pharmacia Biosystems GmbH**  
Postfach 5480  
Munzinger Str. 9  
W 7800 Freiburg 1  
Tel.:0049. 761. 4903-30  
FAX:0049. 761.4903-159

**Pharmacia LKB Biotechnology AB**  
751 82 Uppsala, Sweden  
Tel.:46. 18163000  
FAX:46. 18143820

**Pharmingen**  
11555 Sorrento Valley Rd. #E  
San Diego CA 92121, USA  
Tel.:001. 619. 792-5730  
FAX:001. 619. 792-5238

**Phoenix Flow Systems**  
11575 Sorrento Valley Road  
Suite 208  
San Diego, CA 92121, USA  
Tel.:001. 619. 453-5095  
FAX:001. 619. 259-52668

**Products**

Dyes, biochemicals and antibodies

Equipment for filtration of fluids (large volume filtration)

Flow cytometers:  
(PAS-machines and Cell Analyzer CA)

Laboratory equipment

Biochemicals

Antibodies

Software products for the PC:  
MultiCycle-DNA analysis software  
MultiReport-Clinical flow cytometry Report generator software  
Multi2D-Bivariate data analysis software  
MultiTime-Kinetic versus time data analysis  
Software  
ListView-list mode analysis software under Windows 3.1  
LabReporter-Clinical report generator software for Windows 3.1  
ACQCYTE-Data acquisition software for flow cytometry

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<b>Pierce Europe B.V.</b> P. O. Box 1512 3260 BA oud Beijerland, Holland Tel.:31. 1860. 19277 FAX:31. 1860. 19179	Antibodies
<b>Pierce</b> P. O. Box 117 Rockford, IL 61105, USA Tel.:001. 815. 968-0747 FAX:001. 815. 968-8148	s.a.
<b>Polysciences, INC.</b> 400 Valley Road Warrington, PA 18976-2590, USA Tel.: 001. 215. 343-6484 800. 523-2575 FAX: 001. 215. 343-0214	Dyes, calibration particles and enzyme substrates
<b>Polysciences Limited</b> Niederlassung St. Goar Postfach 64 Ulmenhof 28 W 5401 St. Goar Tel.:0049. 6741. 2081 FAX:0049. 6741. 2089	s.a.
<b>Promega Ltd:</b> Epsilon House Enterprise Road Chilworth Centre Southampton SO1 7NS, England Tel.:0044. 703. 760225 FAX:0044. 703. 7607014	Enzymes and biochemicals
<b>SCHOTT Glaswerke</b> Postfach 2480 W 6500 Mainz Tel.:0049. 6131. 66-0 FAX:0049. 6131. 662003	Optical filters
<b>Schweizerische Seidengazefabrik AG Zürich</b> Grütlistr. 68 Ch 78027 Zürich 2 Tel.:01. 256825 FAX:01. 2010187	Nylon gaze
<b>SERVA FEINBIOCHEMICA GmbH &amp; Co. KG</b> P. O. Box 10 52 60 Carl-Benz-Str. 7 W 6900 Heidelberg 1 Tel.:0049. 6221. 502-0 FAX:0049. 6221. 502-188	Biochemicals

**Suppliers****Products****SIGMA Chemie GmbH**

Diagnostic  
Grünwalder Weg 30  
W 8024 Deisenhofen  
Tel.: 0049. 89. 61301-0  
0130. 5155  
FAX: 0049. 89. 6135135  
0130. 6490

Biochemicals and antibodies

**SIGMA CHEMICAL CO.**

P. O. Box 14508  
St. Louis MO 63178, USA  
Tel.:001. 314. 771-5765  
FAX:001. 800.325-5052

s.a.

**Southern Biotechnology Associates INC.**

P. O. Box 26221  
Birmingham AL 35226, USA  
Tel.:001. 205. 945-1774  
FAX:001. 205. 945-8768

Dyes and antibodies

**Southern Biotechnology Associates INC.  
Germany → DUNN Labortechnik****Spectra-Physics**

1250 W. Middlefield Rd.  
Mountain View, CA 94039, USA  
Tel.:001. 415. 961-2550

Laser manufacturers:  
Argon and krypton laser  
CW dye lasers  
He-Ne laser

**Spindler & Hoyer GmbH & Co.**

Postfach 3353  
Königsallee 23  
W 3400 Göttingen  
Tel.:0049. 551. 6935-0  
FAX:0049. 551. 6935-166

Optical supply:  
Mini-bench series of small components  
and mounts  
Laser manufacturers:  
Yellow,orange, red He-Ne laser

**VERITY Software House, Inc.**

P. O. Box 247  
Topsham - Maine 04086, USA  
Tel.:001. 207. 729-6767

Software products for the PC:  
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contour generator  
ModFit, DNA histogram modeling  
program

**Whatman International Ltd.**

Maidstone, England

Paper for cleaning  
optical equipment

**Wild Leitz**

Postfach 2020  
W 6330 Wetzlar  
Tel.:0049. 6441. 29-0  
FAX:0049. 6441. 293399

Microscopes

**Yakult Honsha Co. Ltd.**

1-1-19 Higashi Shinbashi  
Minato-ku  
Tokyo, 105, Japan

Enzymes and biochemicals

**Zeiss, Carl**

Postfach 1380

Carl-Zeiss-Str.

W 7082 Oberkochen

Tel.:0049. 7364. 20-0

FAX:0049. 7364. 20-6808

Optical filters, prisms, etc.

**Zynaxis Cell Science INC.**

371 Phoenixville Pike

Malvern PA 19355, USA

Tel.:001. 215. 889-2200

FAX:001. 215. 889-2222

Chemicals