

LAB

R E P O R T E R

A Quarterly Publication for Fisher Scientific
NO.2, 2016

OCEAN TEMPS MAY PREDICT **HEAT WAVES**

50 DAYS OUT

In This Issue: History of J.T.Baker, Venom Immunotherapy,
Chemical Toxicity Testing, Diagnostics in Remote Locations

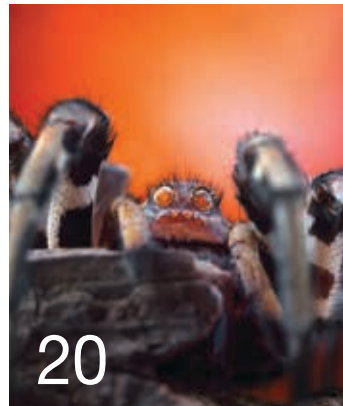


CONTENTS

24 **FEATURED ARTICLE**
Ocean Temps May Predict Heat Waves 50 Days Out



6 **CHEMICALS**
History of J.T.Baker



11 **CONSUMABLES**
The Search for Accuracy in Chemical Toxicity Testing

20 **LAB EQUIPMENT**
Venom Immunotherapy: Taking a Bite Out of Pain Management



41 **LIFE SCIENCES**
Lab-on-a-Chip Shows Promise for Diagnostics in Remote Locations

CONTACT US

U.S.: 1-800-766-7000 www.fishersci.com
Canada: 1-800-234-7437 www.fishersci.ca

Sign up today at www.fishersci.com/labreporter



Lab Reporter provides quick and easy access to today's cutting-edge products and trusted solutions for all of your scientific research and applications.

Supplier/Product Guide

CHEMICALS AND CHROMATOGRAPHY

Avantor J.T.Baker Analytical Chemistries.....	8
Brady Label Rolls.....	10
Decon BathBrite.....	9
Fisher BioReagents Ethanol.....	5
Fisher Chemical Packaging.....	4
PIP MaxiChem Cut Gloves.....	10
Ricca Conductivity and pH Products.....	9
SPEX CertiPrep.....	10
SP Scienceware Labware.....	10

CONSUMABLES

Ansell Alphatec Gloves.....	19
BrandTech BRAND PCR Tubes, Strips and Plates.....	13
BrandTech BRAND Transferpette S.....	13
DuPont Tychem ThermoPro Sleeveless Aprons.....	15
DURAN Laboratory Bottles.....	14
Kimble Steripettes.....	15
Qorpak Beakers and Bottles.....	12
Sonoco ThermoSafe Via Blood Transporter.....	19
Thermo Scientific Automated Tips.....	16
Thermo Scientific Liquid Handling Crossword Puzzle... 17	

Thermo Scientific Nalgene Cryogenic Tubes.....	18
Wheaton AntiBind Microplates.....	19

LAB EQUIPMENT

AirClean Systems Laboratory Safety Solutions.....	27
Biotek BioStack 4 Microplate Stacker.....	40
EVOS Imaging Systems.....	39
Fisherbrand Chairs.....	36
Fisher Scientific accumet AB Benchtop Meters.....	26
Fisher Scientific Vortex Mixers.....	21
Fisher Scientific MaximaDry Pumps.....	30
Fisher Scientific TraceableLIVE Datalogging Thermometers.....	30
Fisher Scientific Sonic Dismembrators.....	32
Fisher Scientific New Lab Start-Up Program.....	47
Fisher Scientific Bead Mill Homogenizers.....	38
Hamilton Autosampler Syringes.....	36
Heidolph Hei-TORQUE Stirrers.....	37
Invitrogen Countess.....	39
KNF LABOPORT Vacuum Pumps.....	38
Labconco ScrubAir Pipette Washer and Dryer.....	31
Mettler Toledo Analytical Solutions.....	29

Ohaus MB Moisture Analyzers.....	33
Sartorius Mark 3 LTE Moisture Analyzer.....	34
Thermo Fisher Scientific Financial Services.....	23
Thermo Scientific Heracell VIOS Incubators.....	22
Thermo Scientific Biological Safety Cabinets.....	23
Thermo Scientific VersaCool Refrigerated Bath Circulator.....	28
Thermo Scientific SPECTRONIC 200.....	28
Thermo Scientific Orion ROSS Ultra Triode pH/ATC Electrodes.....	28
Thermo Scientific Thermal Mixer.....	32
Thermo Scientific Auto-Lock Rotor Exchange.....	36
Welch Self-Cleaning Vacuum System.....	32
Wheaton Automatic Crimping Tool.....	35

LIFE SCIENCES

Axygen PCR Microplate.....	46
BioTek BioSpa 8 Automated Incubator.....	45
EMD Millipore Amicon Filters.....	42
Fisher Scientific Paddle Blenders.....	43
Thermo Scientific SureTect Real-Time PCR System.....	43
Sartorius Claristep Filter Units.....	44

Note: Prices are U.S. list prices — pricing may vary in Canada.

Trademarks of our valued suppliers: Agilent, AirClean Systems, ALPHATEC, Amicon, Ansell, AntiBIND, ATG, BathBrite, Beckman, Bel-Art, BioSpa, BioStack, Biotek, Brady, BRAND, Caliper/Zymark, Certiprep, Claristep, Corning, Countess, Decon, Dupont, Duran, EMD Millipore, Eppendorf, ERGOFORM, EVOS, FreezerBondz, H-B Instrument, Heidolph, Hei-TORQUE, Invitrogen, Kimble, KNF, Labconco, LABOPORT, LabX, Matrix, Maxichem, MaximaDry, Mettler Toledo, Molecular Devices, Nalgene, Nunc, Ohaus, PerkinElmer/Packard, PlateMate, PowderSafe, Qiagen, Qorpak, Ricca Chemical Company, Rotovap, Sartorius, ScrubAir, Secador, Sonoco, SPECTRONIC, SPEX, SP Scienceware, StainerBondz, Sterileware, Steripettes, Tecan, Thermo Scientific, ThermoPro, ThermoSafe, Traceable, Transferpette S, Tychem, VersaCool, Welch, Wheaton, Wilmad-LabGlass, WorkHorse

Trademarks of Fisher Scientific: Acros Organics, accumet, Fisherbrand, Fisher Chemical, Fisher Scientific, Lab Reporter

For trademark ownership, see www.fishersci.com/trademarks.



Are you a Subscriber?

In every digital issue, you'll receive:

- Essential resources, current promotions and special pricing from premium suppliers
- Interesting and relevant editorial content that explores the latest headlines and leading scientific research

Sign up today at www.fishersci.com/labreporter

Protection Inside and Out



Chemical Packaging to Keep You Safe

Innovative Packaging

High-purity solvents from Fisher Chemical come in a wide variety of packaging that is designed for safety, environmental protection, convenient handling and product integrity preservation.

QR Codes to Retrieve SDS and CofA

Safety is at your fingertips with Fisher Chemical labels. Scan the QR codes on select labels with your smartphone or tablet to quickly access the Safety Data Sheet (SDS) and lot-specific Certificate of Analysis (CofA) for that product. Once you access the information, you can print or email it and save it for later use. It's the fast way to respond to safety issues.



Get a Safety Bottle Carrier at No Cost

For a limited time, purchase one case of the Fisher Chemical Elite 8 Solvent listed and receive a 4L Thermo Scientific Nalgene LDPE Safety Bottle Carrier (**03-439-29**) at no additional cost. Visit www.fishersci.com/safetycarrier to redeem. All purchases must be made between April 1, 2016 and August 30, 2016. Limit two complimentary products per lab.

Description	Grade	Size	Cat. No.	Price
Acetone	HPLC	4L	A9494	\$219.11
Acetonitrile	HPLC	4L	A9984	\$485.31
Ethyl Acetate	HPLC	4L	E1954	\$173.66
3:1 Ethyl Acetate / ETOH	Optima	4L	E1514	\$147.90
Hexanes	HPLC	4L	H3024	\$164.95
Methanol	HPLC	4L	A4524	\$110.10
Methylene Chloride	HPLC	4L	D1434	\$145.56
Acetone	Certified ACS	4L	A184	\$214.33
Ethyl Acetate	Certified ACS	4L	E1454	\$303.71
Hexanes	Certified ACS	4L	H2924	\$235.97
Methanol	Certified ACS	4L	A4124	\$142.36
Methylene Chloride	Certified ACS	4L	D374	\$208.57
2-Propanol	Certified ACS	4L	A4164	\$208.89
Ethanol, Denatured	Laboratory	4L	A4074	\$172.85
Ethanol Absolute (200 Proof)	Molecular Biology Grade	4L	BP28184	\$275.14
Ethanol, 70% in Water	Molecular Biology Grade	4L	BP82014	\$245.10
Ethanol, 96% in Water	Molecular Biology Grade	4L	BP82024	\$247.25

Purify, Concentrate, Clean

Fisher BioReagents Ethanol

Fisher BioReagents Molecular Biology grade ethanols are filtered at 0.2µm and tested for DNase, RNase and Protease to ensure absence of hydrolytic enzymes that can degrade target biomolecules during nucleic acid and protein isolation and purification. Choose between absolute ethanol (200 proof) for purification and precipitation of biomolecules, 70% and 96% ethanol solutions for concentrating nucleic acid samples, or a 70% denatured ethanol solution for histological applications and cleaning lab surfaces.



Visit www.fishersci.com/fisherbioreagents for more information.

Description	Size	Packaging	Cat. No.	Price
Ethanol, Absolute (200 proof)	100mL	Amber Glass	BP2818-100	\$47.02
	500mL		BP2818-500	\$70.30
	4L		BP2818-4	\$275.14
Ethanol, Denatured, 70%	1 gal.	Plastic	BP8203-1GAL	\$72.81
	500mL		BP8201-500	\$47.80
Ethanol, 70% in Water	1L	Amber Glass	BP8201-1	\$79.00
	4L		BP8201-4	\$245.10
	500mL		BP8202-500	\$54.27
Ethanol, 96% in Water	1L	Amber Glass	BP8202-1	\$85.00
	4L		BP8202-4	\$247.25



BUILDING A LEGACY OF **QUALITY:**

J.T.Baker Brand Now
Available Through
Fisher Scientific

Gene Nichols, Avantor Performance Materials



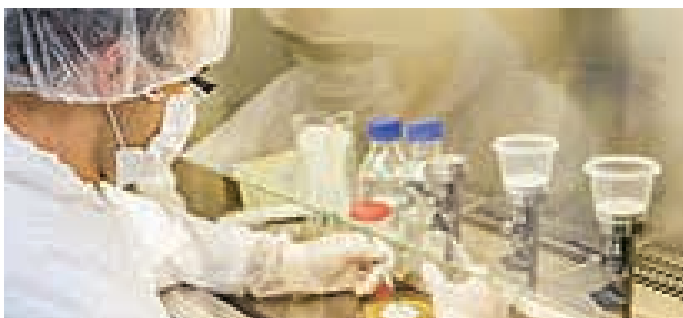
John Townsend Baker, the man whose name adorns the respected J.T.Baker brand of analytical chemistries, was an innovator at heart. He was a pioneer who established a brand that revolutionized chemical quality and data transparency, and would be used in groundbreaking research and manufacturing applications for more than a century to come.

But in the years before the J.T.Baker brand was born, John Townsend Baker was merely a pragmatic college student looking to improve his chemistry grades.

J.T.Baker studied chemistry at Lafayette College in Easton, Pennsylvania. After receiving a less-than-stellar grade in a chemistry lab, he realized that the laboratory chemicals he was using in class were not sufficiently pure to facilitate accurate results. At this point, a typical college student would simply sigh and move on to the next assignment. J.T.Baker, clearly, was not a typical student. He engaged his entrepreneurial spirit and began a quest to provide laboratory scientists with chemicals that were as pure as those used in commercial production.

Baker met his goal — and accelerated his career — in 1904 when he founded the J.T.Baker Chemical Company along the Delaware River near the border of New Jersey and Pennsylvania. The original mission of the J.T.Baker Chemical Company was concise, yet profound: Produce chemicals of the “highest degree of purity commercially available.”

Baker established the iconic J.T.Baker brand and began living his new company’s mission immediately.





The J.T. Baker brand was the first to include labels that listed accurate analyses of trace impurity levels. It sounds simple now, but at the time J.T. Baker labels represented a major step forward in data transparency and laboratory efficiency. It saved chemists valuable time and rework, and increased their confidence in lab results.

Within a few short years, the brand was gaining recognition as a cutting-edge solution with unique levels of purity. It was driving innovation in laboratories and manufacturing facilities throughout the U.S., and it was helping to shape the future.

During World War I, J.T. Baker materials were used in the manufacturing of munitions and medicines, including many drugs that were not available in the U.S. prior to the war. During World War II, the brand was essential in many testing and quality-control applications to support the war efforts.

The innovation of the J.T. Baker brand extended to material packaging and safety. To preserve the purity of the chemicals — and to protect the individuals who handle

them — J.T. Baker developed a new type of packaging for hydrofluoric acid, which corrodes glass. The new ceresin wax bottle became a safe vessel in which to store the corrosive acid. It was used by the J.T. Baker Chemical Company until the 1950s and was the predecessor to the polyethylene bottles that are used widely today.

By the 1970s, the J.T. Baker brand had extended its reputation for quality around the globe and, in one case, beyond: J.T. Baker brand ULTREX phosphorous pentoxide was used by scientists to study and analyze lunar samples brought home from the historic Apollo 11 mission.

Built on a legacy of innovation and performance, the J.T. Baker brand has grown — in both reputation and scope — considerably over the past quarter century. Today, J.T. Baker brand chemicals are trusted by many of the world's leading pharmaceutical producers, academic and corporate laboratories, and electronics manufacturers.

J.T. Baker brand chemicals and reagents have played a role in the development of

life-saving medicines and world-changing technologies, and they have been used to test the quality of the food we eat, the water we drink and the products we use every day.

Back in 1904, the J.T. Baker brand was produced in a humble, single-building facility on the New Jersey-Pennsylvania border. John Townsend Baker himself would often row a boat across the Delaware River to get to his office in the morning.

Today — more than 110 years later — the J.T. Baker brand is manufactured in cGMP facilities in the U.S., Europe and India. It is one of the most widely known and respected brands of analytical chemicals in the world, and it is available through a robust distribution network that now includes Fisher Scientific.

Most importantly, the J.T. Baker brand still stands for chemical quality and data transparency, and continues to instill confidence and drive innovation in laboratories worldwide.

Some things never change.

Time-tested Performance. Trusted Results.

The respected J.T.Baker® brand of analytical chemistries is now available through Fisher Scientific.

For more than a century, J.T.Baker® analytical chemistries have been known around the world for unsurpassed reproducibility, purity and consistency. Application-optimized and function-tested to excel in the world's most demanding laboratory applications, J.T.Baker® chemicals and reagents improve lab and instrument performance, and help advance cutting-edge life sciences applications.

For product availability, ordering information and more, visit www.fishersci.com/JTBaker



Buy 3, Get 1 at No Additional Cost

Ricca Conductivity and pH Products



Buy any three of the Ricca Conductivity or pH qualifying products and you'll get a complimentary product. View the full promotion at www.fishersci.com/RiccaPromo.

Visit www.fishersci.com/RiccaChemical for more information about Ricca Chemical products.

Qualifying Products

Description	Size	Cat. No.	Price
Conductivity Standard, 1.413mS/cm	1L	22365232	\$49.16
Conductivity Standard, 10µS/cm	1L	223632	\$62.45
Conductivity Standard, 100µS/cm	1L	223732	\$49.76
Conductivity/TDS Standard, 500µS/cm	4L	22411	\$117.74
Conductivity Standard, 1000µS/cm	4L	22431	\$113.35
Buffer, Reference Standard, pH 4.00	500mL	150116	\$25.48
Buffer, Reference Standard, pH 10.00	500mL	160116	\$25.75
Buffer, Precision Standard, pH 7.000, Yellow	500mL	155216	\$41.16

Complimentary Items

Description	Size	Cat. No.	Price
pH Test Strips, 0 - 14	N/A	88801	\$32.06/ Box of 100
Electrode Storage Solution	500mL	279516	\$40.63
Water, ASTM Type I, ACS	4L	91501	\$31.36
Buffer, Reference Standard, pH 2.00	500mL	149316	\$30.12
Buffer, Reference Standard, pH 1.68	500mL	149216	\$38.89
Buffer, Reference Standard, pH 12.00	500mL	161516	\$32.37
Buffer, Reference Standard, pH 11.00	500mL	R161016	\$35.29

Extend the Life of Your Bath Water

Decon BathBrite — Water Conditioner for Water Baths

Use BathBrite in water baths, incubators and other temperature-controlled laboratory equipment to extend the time between water replacement. Simply add 10 to 15 drops per gallon of water to keep the solution clear and fresh.



Description	Cat. No.	Price
BathBrite, 8 oz.	04-355-142	\$69.00 Each \$414.00/Case of Six

Note: Products are not available through Fisher Scientific in Canada.

Lab Assistance to Love!

Bel-Art | H-B Instrument | Wilmad-LabGlass



Secador® Desiccator Cabinets
A UV-Light Blocking, Dry Environment



Verification Thermometers
Freezer, Refrigerator, Incubator, Oven



Sterileware® Sampling Tools
Sterilized, FDA Grade, Lot Stamped



Wilmad-LabGlass
The first name in NMR/EPR and Lab Glass



Over 250 Years
of Expertise!

Limited Time: Buy 2, Get 1



Brady Label Rolls

Buy 2,
Get 1
on Us



Description	Promo No.	Cat. No.	Price
FreezerBondz B492 Cryogenic Labels			
Roll of 10,000 25.4 x 12.7mm	THT5949210promo	11-878-164	\$1,465.76/ Pack of 3
StainerBondz B481 Slide Labels			
Roll of 2,500 22.86 x 22.86mm	THT16448125SCpromo	11-878-160	\$478.00/ Pack of 3
Roll of 3,000 22.86 x 19.05mm	THT1944813promo	11-878-162	\$518.00/ Pack of 3
WorkHorse B7425 Thermal Transfer Printer Labels			
Roll of 2,000 25.4 x 12.7mm with 11.2 Diameter Top	THT25174252promo	11-878-163	\$300.00/ Pack of 3
Roll of 2,000 25.4 x 12.7mm	THT5974252promo	11-878-165	\$208.50/ Pack of 3
Roll of 2,000 25.4 x 19.1mm	THT8874252promo	11-878-166	\$298.00/ Pack of 3

Must reference promo part number at time of placing order. Three rolls come in the kit for the price of two. Label materials can be used with other industry thermal transfer printers when using Brady ribbons. Brady Printer compatibility: IP300, IP600, BBP81, BBP12.

Chemical Resistance and Cut Protection



Maxichem Cut Gloves by ATG

Maxichem Cut technology delivers cut protection and chemical resistance with high levels of comfort.



Visit www.fishersci.com for more information.

Description	Dimensions (L x W)	Cat. No.	Price
MaxiChem Cut Nitrile Blend Coated Gloves, Small	12 x 4.1in.	19-148-207	\$399.40/12 Pairs \$2,276.58/72 Pairs
MaxiChem Cut Nitrile Blend Coated Gloves, Medium	12 x 4.3in.	19-148-208	\$399.40/12 Pairs \$2,276.58/72 Pairs
MaxiChem Cut Nitrile Blend Coated Gloves, Large	12 x 4.4in.	19-148-209	\$399.40/12 Pairs \$2,276.58/72 Pairs
MaxiChem Cut Nitrile Blend Coated Gloves, X-Large	12 x 4.6in.	19-148-210	\$399.40/12 Pairs \$2,276.58/72 Pairs
MaxiChem Cut Nitrile Blend Coated Gloves, 2X-Large	12 x 4.7in.	19-148-211	\$399.40/12 Pairs \$2,276.58/72 Pairs

Buy 2, Get 1 on Single-Element Standards



SPEX CertiPrep

From Aluminum to Zirconium, SPEX CertiPrep offers the same great quality, single-element standard in a smaller volume. Purchase two 30mL single-element standards for ICP and ICP/MS and get a third at no additional cost.



Visit www.fishersci.com/spex30mlpromo for more information.

Prices are U.S. list prices — pricing may vary in Canada



THE SEARCH FOR ACCURACY

in Chemical Toxicity Testing

By Kevin Ritchart

The lack of accurate measurement of toxicity levels is one of the chief reasons new drugs can fail. To combat this issue, U.S. scientists have developed a method of testing for toxicity that has not only proven to be faster and more accurate, but also will increase the understanding of existing risks, and may even result in the reduction of dependence on animal testing.

So far, scientists tested 10,000 different chemical compounds in a lab using human cells. The results of this testing were used to construct models to essentially “predict” whether certain compounds — or combinations of them — could be harmful to humans or the environment if they were used in new drugs or environmental chemicals.

The Tox21 Library

The hope is that this new library of toxicity data, created as a result of extensive testing, will help to identify unsafe chemical compounds in things like pesticides, industrial chemicals, food additives and drugs at an earlier stage of the research process. Additionally, traditional toxicity tests using animals can be both expensive and unreliable in accurately predicting a chemical’s impact on humans.

These factors, combined with the ethical concerns associated with animal testing, make this new, combined effort of the Environmental Protection Agency (EPA), the National Institutes of Health (NIH)

and the Food and Drug Administration (FDA) — dubbed Tox21 — that much more important.

For Tox21 (short for Toxicology in the 21st Century) to be successful in the long term, the new testing protocol will have to be at least as reliable in predicting the toxicity of chemical compounds as traditional animal testing. At this point, after testing 15 different concentrations of 10,000 chemical compounds (known as the Tox21 10K library), scientists have been able to determine toxicity levels for both humans and animals with increasing accuracy, which makes Tox21 a promising alternative to the current testing regimen.

Since its inception in 2008, Tox21’s aim has been to utilize in vitro (Petri dish) testing rather than in vivo (live) testing of animals. Further examination will have to be done to ensure Tox21’s long-term viability, but at this time it’s unlikely to replace animal testing altogether. Instead, Tox21 will be used to prioritize chemicals with high toxicity levels and earmark them for further testing.

Testing in Action

A recent test was conducted involving estrogen receptors, which are activated by the hormone estrogen and convey signals to the body that regulate reproductive functions. Bisphenol A (BPA), an industrial chemical that’s used to make plastics and is commonly found in water bottles, has been linked to birth defects in infants.

Animal studies suggest that BPA could cause these effects by mimicking estrogen. The Tox21 10K screens helped identify chemical classes that have been known to interact with estrogen receptors as well as some that were not previously known to scientists.

Among the animal-testing protocols the EPA is looking to eliminate is the so-called “6-pack” of tests associated with pesticides. The 6-pack includes three lethal-dose oral, inhalation and dermal toxicity tests in which 50 percent of the animals tested are killed by the test chemical. The Draize eye and skin irritation tests and skin sensitization test comprise the rest of the 6-pack.

The Future

Despite the name, Tox21 doesn’t provide specific information on the toxicity levels of substances. Rather, it shows how chemicals are likely to react when introduced into a complex biological system like the human body. Tox21’s value at this point in time is to help scientists identify substances that might be harmful and outline ways for potentially harmful chemicals to be used safely.

By combining the speed and data collection of high-throughput screening with the interpretive nature of computational biology, researchers can become better equipped to outline which substances are safe to use and which ones are in need of further testing.

Mix, Measure, and Store



Qorpak Graduated Medium Round Bottle Beakers



Clear Bottles

- For use with biological and pathological specimens
- Can be used for storing industrial laboratory chemicals and reagents
- Molded graduations in milliliters and ounces

Capacity: oz. (mL)	Neck Finish	Convenience Pack			Bulk Pack		
		Cat. No.	Quantity	Price	Cat. No.	Quantity	Price
Bottles Only							
1 (30)	33-400	02-991-952	48	\$40.21	02-991-620	432	\$284.84
2 (60)	38-400	02-992-749	48	\$48.63	02-991-815	288	\$245.79
4 (120)	48-400	02-992-800	24	\$28.89	02-991-796	144	\$131.62
8 (240)	58-400	02-992-920	24	\$37.78	029-91-715	96	\$114.11
16 (480)	70-400	02-992-152	24	\$49.01	02-991-732	48	\$ 71.94
With Attached Closures: Green Thermoset F217 & PTFE Caps							
1 (30)	33-400	02-992-128	48	\$ 94.71	02-993-059	432	\$807.24
2 (60)	38-400	02-992-601	48	\$115.30	02-993-085	288	\$702.04
4 (120)	48-400	02-992-588	24	\$ 71.18	02-993-200	144	\$455.23
8 (240)	58-400	02-992-647	24	\$101.61	02-993-162	96	\$414.09
16 (480)	70-400	02-992-801	24	\$140.91	02-993-218	48	\$294.87
With Attached Closures: Black Phenolic Caps with Pulp/Vinyl Liners							
1 (30)	33-400	02-992-136	48	\$68.56	02-991-878	432	\$459.69
2 (60)	38-400	02-992-559	48	\$78.68	02-991-925	288	\$376.00
4 (120)	48-400	02-992-645	24	\$47.96	02-992-077	144	\$226.74
8 (240)	58-400	02-992-760	24	\$62.43	02-992-069	96	\$188.54
16 (480)	70-400	02-992-977	24	\$82.26	02-992-174	48	\$134.21

Impact and Moisture Protection



Qorpak Natural HDPE Wide-Mouth Round Bottles



Natural Bottles

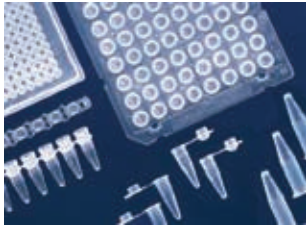
- Ideal for general use with solids and powders
- Provide an excellent moisture barrier
- Impact resistant

Capacity: oz. (mL)	Neck Finish	Convenience Pack			Bulk Pack		
		Cat. No.	Quantity	Price	Cat. No.	Quantity	Price
Bottles Only							
1 (30)	28-400	-	-	-	02-991-449	1,650	\$593.74
2 (60)	33-400	02-991-684	48	\$41.89	02-991-088	850	\$405.14
4 (120)	38-400	02-991-680	48	\$46.06	02-991-303	475	\$280.77
8.5 (250)	53-400	02-991-655	48	\$63.83	02-991-425	364	\$405.28
13.5 (400)	53-400	-	-	-	02-991-707	192	\$224.07
16 (500)	53-400	-	-	-	02-991-161	180	\$199.48
32 (950)	53-400	-	-	-	02-991-477	72	\$159.30
32 (950)	63-400	-	-	-	02-991-908	72	\$116.34
32 (960)	70-400	-	-	-	02-991-769	106	\$276.34
64 (1920)	100-400	-	-	-	02-993-061	50	\$185.51
68 (2000)	89-400	-	-	-	02-991-225	50	\$248.70
128 (3840)	89-400	02-992-157	4	\$17.62	02-992-138	60	\$201.47
With Attached Closures: White PP SturdeeSeal, PE Foam Caps							
1 (30)	28-400	02-991-562	48	\$43.48	02-991-456	1,650	\$833.15
2 (60)	33-400	02-991-574	48	\$44.04	02-992-030	850	\$550.12
4 (120)	38-400	02-991-570	48	\$53.12	02-991-938	475	\$358.37
8.5 (250)	53-400	02-991-559	48	\$69.87	02-993-198	364	\$550.40
16 (500)	53-400	02-991-557	24	\$44.56	02-992-257	180	\$270.63
32 (950)	53-400	02-991-573	12	\$33.78	02-993-191	72	\$190.34
32 (950)	63-400	-	-	-	02-991-935	72	\$145.31
68 (2000)	89-400	02-991-585	6	\$33.19	02-991-755	50	\$208.76
128 (3840)	89-400	02-991-539	4	\$20.42	02-991-534	60	\$244.11

Visit www.fishersci.com/qorpak for more information.

Contamination-Free PCR

BrandTech BRAND PCR Tubes, Strips and Plates



The BRAND collection of PCR tubes, strips and plates are produced from pure raw materials using the most advanced clean room techniques. They are manufactured without lubricants or chemical additives that can contaminate reagents and samples.

- PCR tubes, strips and plates are compatible with most thermal cyclers with standard and low-profile thermal blocks
- Free from DNA, DNase, RNase and other PCR inhibitors
- White PCR Plastics designed to optimize results when performing qPCR are also available

Description	Cat. No.	Packaging	Price
PCR Plates			
96-Well PCR Plates, Non-Skirted, Low Profile (0.15mL), Clear	14-388-160	Pack of 50	\$218.50
96-Well PCR Plates, Non-Skirted, Standard Profile (0.2mL), Clear	14-388-161	Pack of 50	\$217.50
96-Well PCR Plates, Semi-Skirted, Low Profile (0.15mL), Clear	14-388-162	Pack of 50	\$211.50
96-Well PCR Plates, Semi-Skirt with Raised Edge, Low Profile (0.15mL), Clear	14-388-163	Pack of 50	\$218.50
96-Well qPCR Plates, Low Profile for Roche LightCycler, White	13-882-330	Pack of 50	\$335.00
384-Well qPCR Plates, Full-Skirt for Roche LightCycler, White	13-878-207	Pack of 50	\$648.00
PCR Tubes			
0.2mL PCR Tubes, Flat Caps, Clear	13-882-58	Pack of 1,000	\$86.70
0.2mL PCR Tubes, Dome Caps, Clear	13-882-301	Pack of 1,000	\$134.50
PCR Strips			
8-Strip of PCR Tubes (0.2mL) with Individual Attached Flat Caps, Clear	13-882-302	Pack of 120	\$262.00
8-Strip of PCR Tubes (0.15mL) with Individual Attached Flat Caps, Clear	13-882-303	Pack of 120	\$287.00
8-Strip of PCR Tubes with 8-Strip of Flat Caps, Clear	13-882-305	Pack of 250	\$300.50
8-Strip of PCR Tubes, 0.2mL, Clear	13-882-64	Pack of 125	\$106.00
8-Strip of PCR Flat Caps, Clear	14-380-824	Pack of 125	\$67.80
8-Strip of PCR Domed Caps, Clear	13-882-69	Pack of 125	\$51.90

High-Performance Pipetting

BrandTech BRAND Transferpette S



Constructed with innovative composite materials, BRAND Transferpette S Pipettes offer superior performance, comfort and value in a lightweight, autoclavable package. The four-digit display is easy to read for precise volume settings and is always visible during pipetting. Transferpette S Pipette Starter Sets include three pipettes in coordinating sizes with performance certificates, operating manual, three shelf mounts and three polypropylene tip boxes filled with appropriately sized tips.

- Thumb-tip volume selection allows you to set and secure the volume without shifting your hand position
- Low weight and the shortest pipetting stroke among premium pipettes reduces the risk of repetitive strain injury
- Accepts tips from most manufacturers



Transferpette S Single Channel Pipette Starter Sets

Name	Description	Cat. No.	Price
Micro Starter Set	Includes Sizes 0.1-1µL, 0.5-10µL and 10-100µL	03-837-790	\$950.00
Standard Starter Set	Includes Sizes 0.5-10µL, 10-100µL and 100-1000µL	03-837-793	\$964.00
Mid-Size Starter Set	Includes Sizes 2-20µL, 20-200µL and 100-1000µL	03-837-327	\$973.00
Macro Starter Set	Includes Sizes 100-1000µL, 500-5000µL and 1000-10000µL	03-837-728	\$945.00

Protect Your Biologics and Solutions



DURAN Laboratory Bottles with PROTECT

DURAN bottles are made from USP 3.3 borosilicate glass and feature the PROTECT coating that supports glass integrity to protect your sample from spilling. The coating is durable enough to be autoclaved and won't crack, peel or yellow, so you always have a clear view of your sample. The wide mouth makes these bottles ideal for transferring, handling and storing samples, an excellent choice for sensitive samples and biologics.

- Wide-neck, screw-thread cap — 80mm diameter, special thread design for rapid opening and closing
- Inert and chemically resistant — exceptional properties of DURAN eliminate problems with ion leaching
- Mechanical strength — the sturdy design of these wide-neck bottles enhances safety and service life
- Traceability — use the eight-digit batch code to trace the bottle back to the point of production and use the corresponding item number to retrieve a batch and quality certificate online
- Stability — the large, stable base area allows for safe and easy storage
- Labelling — provided with a printed white panel for labelling the contents
- Graduated — convenient, easy-to-read graduations indicating volume



GLS 80 Clear Glass Bottles, Including Blue PP Screw Cap and Pouring Ring



Capacity	Cat. No.	Price
With PROTECT		
250mL	09-841-220	\$500.50/Pack of 10
500mL	09-841-202	\$499.00/Pack of 10
1000mL	09-841-203	\$621.00/Pack of 10
2000mL	09-841-204	\$1,023.00/Pack of 10
5000mL	09-841-205	\$431.00/Each
20000mL	09-841-227	\$893.50/Each
Plain (without PROTECT)		
250mL	09-841-228	\$179.80/Pack of 10
500mL	09-841-222	\$193.10/Pack of 10
1000mL	09-841-223	\$228.00/Pack of 10
2000mL	09-841-224	\$503.00/Pack of 10
5000mL	09-841-225	\$227.50/Each
10000mL	09-841-226	\$413.50/Each

Replacement Caps

Description	Size	Mfr. No.	Cat. No.	Price
Screw Cap, GLS 80, Blue PP	GLS 80	1112716	09-841-273	\$54.80/Pack of 10
Pouring Ring, GLS 80, Blue PP	GLS 80	1160166	09-841-245	\$37.20/Pack of 10

Buy 2 Cases, Get 1



Kimble Steripettes



When you purchase two cases of Kimble Steripettes, you'll get a third case at no additional cost.

- Capacity: 2mL
- Tip opening ID: 1.1mm
- Constricted top for cotton plugging
- Gamma-irradiated to assure sterility
- Convenient 250-piece multi-pack configuration; 10 peel-packs of 25 each
- Manufactured from 90 expansion soda lime glass; conforms to USP Type III requirements
- Designed to ASTM E732-80 specifications

Visit www.fishersci.com/kimblesteripettespromo to take advantage of this offer.

Description	Length: cm (inches)	Cat. No.	List Price
Unplugged	14.6 (5.75)	13-678-651	\$62.60/Case of 250
Cotton plugged	14.6 (5.75)	13-678-652	\$77.80/Case of 250
Unplugged	22.86 (9)	13-678-653	\$66.50/Case of 250
Cotton plugged	22.86 (9)	13-678-654	\$86.90/Case of 250

Triple Hazard Protection



DuPont Tychem ThermoPro Sleeveless Aprons



Tychem ThermoPro garments are designed to combine the trusted chemical protection of Tychem and the thermal and arc protection of Nomex into a single-layer garment. Tychem ThermoPro fabric provides at least eight hours of breakthrough protection against 20 of the 21 standard ASTM F1001 chemicals and at least 30 minutes of protection from more than 180 chemical challenges, including chemical warfare agents. The arc rating of Tychem ThermoPro fabric is 15cal/cm² Ebt. This exceeds the NFPA70E Hazard Risk Category 2 requirement of 8cal/cm².

Features and Benefits

- Tychem ThermoPro for triple hazard protection
- Sewn with Nomex thread and designed with Nomex Waist Strap and flame-resistant Nylon buckle
- Ideal for use on top of an existing flame-resistant garment where extra chemical protection is required

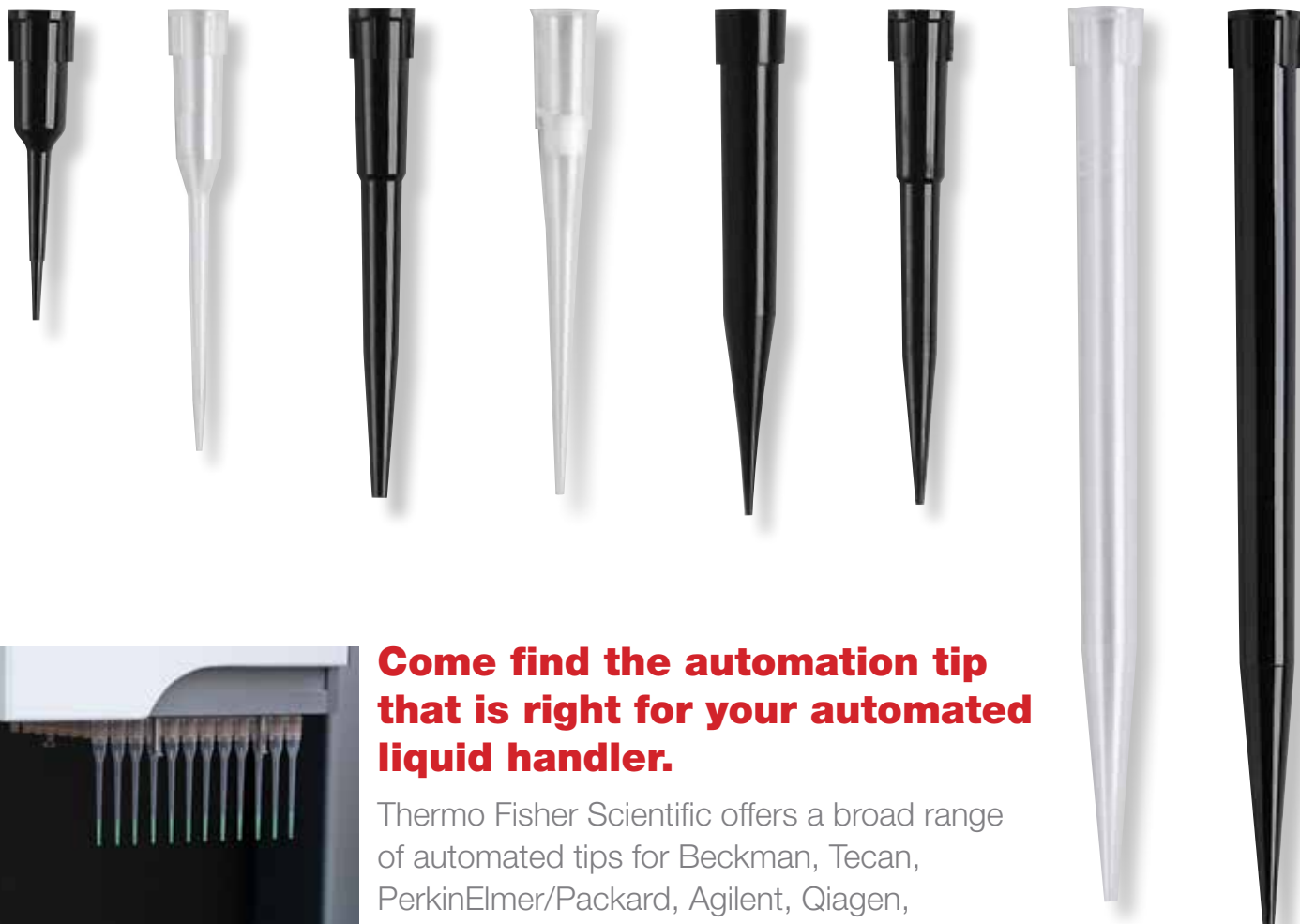
Typical Applications

- Hazmat teams in fire departments
- Industrial fire brigades
- Clandestine lab investigations
- Industrial chemical processing plants
- Laboratories

Description	Cat. No.	Price
Gray		
Small	19-122-000	\$812.23/Case of 4
Medium	19-122-001	\$812.23/Case of 4
Large	19-122-002	\$812.23/Case of 4
X-Large	19-122-003	\$812.23/Case of 4
Orange		
Small	19-122-004	\$812.23/Case of 4
Medium	19-122-005	\$812.23/Case of 4
Large	19-122-006	\$812.23/Case of 4
X-Large	19-122-007	\$812.23/Case of 4
2X-Large	19-141-761	\$860.97/Case of 4

Visit www.fishersci.com for more information.

We'll let you in on a tip... We have many!



Come find the automation tip that is right for your automated liquid handler.

Thermo Fisher Scientific offers a broad range of automated tips for Beckman, Tecan, PerkinElmer/Packard, Agilent, Qiagen, Molecular Devices, Caliper/Zymark, BioTek, Eppendorf, PlateMate 2x31 and PlateMate Plus automated liquid handlers.

Find the right match at
www.fishersci.com

Try your Hand at this Liquid Handling Crossword Puzzle.

Thermo Scientific™ Liquid Handling provides a range of essential tools designed with years of experience and innovation. Find everything from manual and electronic pipetting, automated liquid handlers, reagent dispensers, as well as handheld and automated pipette tips for your lab.



See if you can solve this puzzle with the clues provided below!

Across

2. The stepwise dilutions of substances in solution. Can be performed with pipettes or an automated liquid handler. (2 words)
6. Program your automated liquid handler with automated pipetting _____ to save hands-on time in the lab.
7. Unique to Thermo Scientific, these Barrier Tips prevent contamination from aerosols and other liquids.
8. Use _____ pipettes for medium to high throughput liquid handling requirements.
10. Thermo Scientific offers more than 300 varieties designed to fit over 50 automated liquid handling workstations. (2 words)

Down

1. Similar to filter tips, but these block liquid and aerosols for effective carryover contamination control. (2 words)
3. Unique to Thermo Scientific, this new technology locks tips in place for a complete seal.
4. This Tip Spacing feature allows you to transfer samples from virtually any tube, microplate or horizontal gel box with one pipette.
5. The Multidrop™ Combi SMART dispenser offers built-in _____ of cassettes, for easy traceability.
6. Reagent dispensers are used for this.
9. The ClipTip™ Pipetting System _____ tips onto the pipette and prevents them from falling off regardless of application pressure.

Visit FisherSci.com/HandleAnything to learn more!

Thermo
SCIENTIFIC

A Thermo Fisher Scientific Brand

Ensure Effective Sample Protection



Thermo Scientific Nalgene Cryogenic Tubes



For 40 years, researchers have trusted the Thermo Scientific Nalgene Cryotube portfolio for safe sample storage, even in the harshest cryopreservation conditions. Our Cryotube products are designed, engineered and manufactured with quality in mind. Your samples benefit from our high-purity resins, high-sterility assurance levels and strict quality-control standards. The result is reliable sample integrity designed to help you reach breakthroughs. Place your samples in the hands of someone you trust — let us be your parachute.

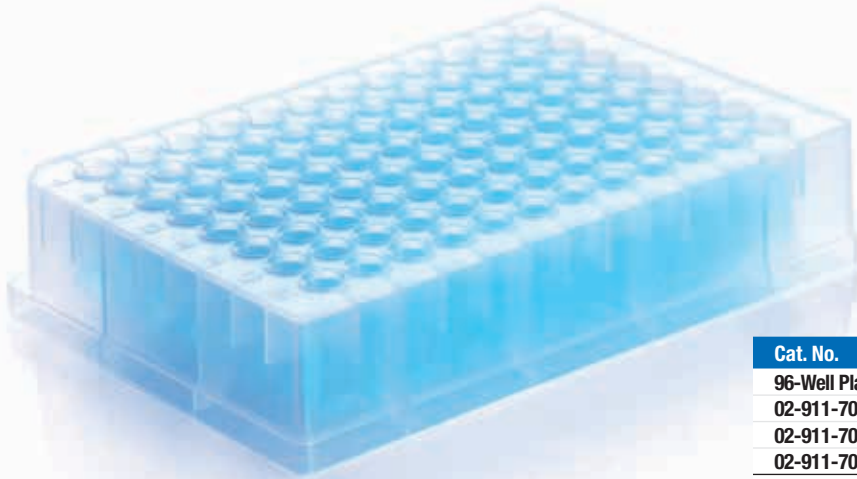
Size	Mfr. No.	Cat. No.	Price
1mL	50001012	03-337-7X	\$361.90/Case of 500
1.2mL	50000012	03-337-7C	\$353.50/Case of 500
1.5mL	50001020	03-337-7Y	\$357.20/Case of 500
2mL	50000020	03-337-7D	\$357.60/Case of 500
5mL	50000050	03-337-7H	\$286.20/Case of 250
15mL	50050015	03-337-7B	\$141.20/Case of 75
1.2mL	50110012	03-337-7N	\$515.30/Case of 1,000
2mL	50110020	03-337-7P	\$515.30/Case of 1,000
1.2mL	50120012	03-337-7V	\$617.80/Case of 1,000
2mL	50120020	03-337-7W	\$615.90/Case of 1,000

Maximum Protein Recovery at Low Concentrations WHEATON

Wheaton AntiBIND Microplates

AntiBIND Microplates utilize Advanced Plasma Technology to modify the polypropylene surface at the molecular level. This produces a comprehensive hydrophilic surface that eliminates nonspecific protein binding without introducing leachables or additives that may affect your assays.

As a result, expect as much as a two-fold increase in protein recovery at low protein concentrations and an uncompromised hydrophilic treatment in the presence of solvents. Use AntiBIND Microplates for chromatography, long-term sample storage or bioanalytical assays.



- Manufactured with ultra-pure polypropylene
- Maximum sample recovery at low concentration
- No leaching of additives or low molecular weight components
- Conical wells for optimal sample mixing

Cat. No.	Quantity	Price
96-Well Plate, Conical, 0.5mL		
02-911-700	20	\$412.80
02-911-701	40	\$801.56
02-911-702	120	\$2,284.42
384-Well Plate, Conical, 120µL		
02-911-703	20	\$381.83
02-911-704	40	\$741.42
02-911-705	120	\$2,001.86

Visit www.fishersci.com/wheaton for more information.

Simple, Reusable, Ergonomic



Sonoco ThermoSafe Via Blood Transporter

The new Sonoco ThermoSafe Via Blood Transporter was designed as a result of years of research to safely transport and temporarily store red blood cells and platelets. It's the latest addition to the ThermoSafe suite of products supporting the transfusion market.

- For temporary storage of blood and blood products in the operating room; pre-qualified to maintain packed red blood cells between 1-6°C and 1-10°C for up to eight hours
- For transport of medications, medical devices, biological specimens and organs; keeps contents at 1-10°C for a minimum of 12 hours
- ZERO BENCH-TIME refrigerant technology reduces assembly time
- Comes complete with refrigerant panels, wire basket, affixed assembly instructions, external document holder and platelet pouch



Description	Cat. No.	Price
Transporter, Expanded Polypropylene (EPP), Holds 3 to 7 (250mL) Bags	03-600-120	\$307.00

Ansell



Feel EQUIPPED™



ALPHATEC® 58-128

The FIRST chemical glove to achieve ergonomic certification using ERGOFORM technology, the ALPHATEC 58-128 supports musculoskeletal health to improve worker performance. It is designed with a thin nitrile barrier for superior hand protection against irritant contact fluids while allowing for precise handling of small, oily or wet parts with ANSELL GRIP technology.

For details, visit www.fishersci.com/AnsellAlphatec



ERGOFORM™
Ergonomic Design Technology



ANSELL GRIP™
Ansell Grip Technology

Ansell, ® and TM are trademarks owned by Ansell Limited or one of its affiliates. US Patented and US and non-US Patents Pending. www.ansell.com/patentmarking © 2016 Ansell Limited. All Rights Reserved.

VENOM IMMUNOTHERAPY

Taking a Bite Out of Pain Management

By Kevin Ritchart

Until recently, the concept of venom immunotherapy was primarily associated with stinging insects, but recent developments are redefining this field of study. Found to be much more than a treatment for bee stings, venom immunotherapy as it relates to spiders, snakes and snails was among the topics covered at the 60th Annual Meeting of the Biophysical Society earlier this year.

A peptide toxin called ProTx-II, which was extracted from the Peruvian green velvet tarantula, has shown the potential through research to be an effective, non-addictive alternative to traditional painkillers.

ProTx-II works by binding the pain receptor located within the membrane of neuronal cells. The exact peptide-receptor binding site within the neuronal cells along with the importance of the cell membrane in blocking pain signals is unknown.

A 2015 Australian study found that seven compounds extracted from spider venom have shown the ability to block a protein instrumental in sending pain signals to the brain. The poison used by arachnids to control their prey contains molecules that can impair the proteins responsible for carrying pain signals between nerves and the brain. Provided these compounds can be isolated and properly controlled, spider venom could prove to be an effective treatment tool for chronic pain sufferers.

A protein called Nav1.7 is believed to be the primary channel by which pain signals

are transmitted in humans. Australian scientists screened the venom of 206 spiders to find the seven compounds that proved effective in blocking Nav1.7 pain signals during lab tests. In all, 40 percent of the venom examined as part of the study contained peptides capable of blocking the Nav1.7 pathway.

Jamming Pain Signals

The venom of the black mamba snake is considered to be among the deadliest in the world, but the identification of multiple proteins contained in the venom of the dangerous reptile has proven effective in eliminating pain – in some cases, with as much potency as morphine. Scientists have discovered proteins contained within venom that serve to effectively jam the channels that allow ions to flow across the membranes of neurons. This chemical cross-chatter in and out of cells is what allows neurons to send messages to the brain and elsewhere in the body. Jamming these communication channels open or closed is what disrupts communication – thereby interrupting the transmission of pain signals – from the site of the pain to the brain and back.

To test this theory further, scientists collected venom from 40 species of scorpions, spiders, sea anemones and snakes, separated them into their component molecules and poured them onto frog cells in a Petri dish to observe the response. The scientists wanted to find out

whether the acid-sensing ion channels of the frog cells, which play a key role in the transmission of pain signals, were blocked as a result of the venom.

Scientists observed that two proteins from the black mamba – named mambalgins-1 and mambalgins-2 – did block the pain signals in a Petri dish. The proteins had the same effect on human cells.

Breaking Through Barriers

Another example of scientists turning to unconventional sources to find inspiration for new painkillers is Prialt, which is based on a component from the venom of a marine snail. Prialt is an incredibly powerful painkiller that's sometimes given to patients when morphine proves ineffective.

One of the reasons Prialt is not more prevalent is that it's difficult to administer. Because it doesn't pass the blood-brain barrier, Prialt must be administered via an injection to the spinal column. The blood-brain barrier is a kind of membrane that prevents most compounds in the blood from entering the brain, but Prialt can't ease a patient's pain if it doesn't get to the brain.

Scientists have been exploring different ways of getting Prialt across the blood-brain barrier without having to administer spinal injections. Lab tests using a cell-penetrating peptide to deliver the Prialt have proven successful, but further testing will be needed to determine whether the drug is effective once it breaks the blood-brain barrier in this manner before the drug can be injected directly into the blood stream or eventually taken in pill form.

A Better Mix



Fisher Scientific Vortex Mixers



Fisher Scientific Vortex Mixers offer continuous or touch-mode operation, gentle or vigorous mixing and a large selection of accessories. With six different models available, you can choose the best one for your needs. Each one is manufactured in the USA. Mixers come with a five-year limited warranty on parts and labor.

- **Fixed-Speed Vortex Mixers** — One-touch units with speed fixed at full rpm are designed for high-speed mixing.
- **Analog Vortex Mixers** — Variable speed and analog control allows low-rpm start-up for gentle shaking or high-speed mixing for vigorous vortexing of samples.
- **Digital Vortex Mixers** — Touchpad controls and LED displays give accurate speed and time for applications that demand repeatable results.
- **Pulsing Vortex Mixers** — Pulsing units produce excellent cell disruption for glass bead procedures and completely disrupt samples in minutes. The pulsing action reduces heat generation while making mixing and disruption more effective.
- **Heavy-Duty Vortex Mixers** — A heavy-duty design and efficient, variable-speed motor allow for continuous duty and handling of all accessories over the entire speed range.
- **Microplate Vortex Mixers** — The high speed and small orbit allow you to effectively mix up to two microplates.

Visit www.fishersci.com for full product details.

Description	Electrical	Cat. No.	Price
Fixed-Speed Mixer	120V, 1.2amps, 150w	02-215-360	\$375.00
Analog Vortex Mixer	120V, 1.2amps, 150w	02-215-365	\$438.00
Digital Vortex Mixer	120V, 1.2amps, 150w	02-215-370	\$527.00
Pulsing Vortex Mixer	120V, 1.2amps, 150w	02-215-375	\$650.00
Standard Heavy-Duty Vortex Mixer	120V, 0.25amps, 30w	02-216-108	\$875.00
Advanced Heavy-Duty Vortex Mixer	120V, 0.25amps, 30w	02-216-109	\$1,009.00
Standard Microplate Vortex Mixer	120V, 0.25amps, 30w	02-216-100	\$450.00
Advanced Microplate Vortex Mixer	120V, 0.25amps, 30w	02-216-101	\$500.00

Designed to Achieve Your Next Breakthrough

Thermo
SCIENTIFIC

Thermo Scientific Heracell VIOS Incubators

Our newest series of incubators represents a new era in advanced incubator design for sensitive cultures in leading research, pharmaceutical and clinical applications. The Thermo Scientific Heracell VIOS CO₂ incubator provides the performance, reliability and ease of operation to support all of your culturing needs, from basic research to demanding, leading-edge applications. We've combined our latest technological advancements in contamination control and uniform growth conditions with proven and reliable features so you can achieve your goals faster, more reliably and with less effort. And, for the many cell types that thrive best with reduced oxygen, we've added variable oxygen control for culturing flexibility.

Better solutions for optimal cell growth

Revolutionary Thermo Scientific THRIVE active airflow technology delivers homogeneous growth conditions fast, avoiding unwanted sample variation.

Complete contamination control

Proven protection available from every direction, including ISO class-5 HEPA-filtered air, on-demand high-temperature sterilization, and easy-to-maintain copper.

Enhanced simplicity

Designed to focus on convenience, allowing you to spend more time on your research and less time managing your incubator.



Description	Interior	Cat. No.	Price
With TC Sensor			
CO ₂ Incubator, Single Chamber	Stainless Steel	13-998-211	\$7,828.00
CO ₂ Incubator, Single Chamber	Copper	13-998-212	\$8,917.50
Tri-Gas CO ₂ Incubator, Single Chamber	Stainless Steel	13-998-213	\$10,608.00
Tri-Gas CO ₂ Incubator, Single Chamber	Copper	13-998-215	\$11,730.00
CO ₂ Incubator, Dual Chamber	Stainless Steel	13-998-223	\$15,732.00/Pair
CO ₂ Incubator, Dual Chamber	Copper	13-998-224	\$17,835.00/Pair
With IR Sensor			
CO ₂ Incubator, Single Chamber for NA Only	Stainless Steel	13-998-130	\$8,755.00
CO ₂ Incubator, Single Chamber	Copper	13-998-131	\$9,936.00
Tri-Gas CO ₂ Incubator, Single Chamber	Stainless Steel	13-998-132	\$11,730.00
Tri-Gas CO ₂ Incubator, Single Chamber	Copper	13-998-134	\$12,915.00
CO ₂ Incubator, Dual Chamber	Stainless Steel	13-998-142	\$17,510.00/Pair
CO ₂ Incubator, Dual Chamber	Copper	13-998-143	\$19,680.00/Pair

Finance Plans Designed to Meet Your Needs

ThermoFisher
SCIENTIFIC

Thermo Fisher Financial Services

We understand the unique requirements of university, government, industry, and research lab procurement procedures. Thermo Fisher Financial Services offer competitive rates and can tailor repayment terms that meet the customer's needs.

Leasing available for:

- General laboratory equipment
- Analytical instrumentation
- Casework and lab workstations
- Software, service and consumables for your equipment

Leasing options:

- **Fair market value** — low monthly payments with end-of-term flexibility
- **\$1 purchase option** — own the equipment at the end of the lease term
- **All-inclusive lease** — one convenient monthly payment for equipment, consumables and service
- **Master lease** — make multiple acquisitions over time with a simple, one-page schedule
- **Emerging credit** — a structured lease program for development-stage companies
- **Technology refresh** — avoid equipment obsolescence and upgrade mid-term



For more information, contact Jan Fisher, account manager, at 724-517-2668 or jan.fisher@thermofisher.com.

Protection That Never Takes a Day Off

Thermo
SCIENTIFIC

Biological Safety Cabinets



With Thermo Scientific biological safety cabinets, the certified performance and protection you receive on day one stays with you every day. We pioneered the first innovative brushless DC motor technology. Our DC motor advancements, now available in our full line of BSCs and the Heraguard ECO clean bench, have redefined and transformed BSC energy efficiency, safety, performance and reliability. With our proven reliability, ergonomics and energy efficiency, the ideal choice is the one you can trust every day.

- DC motors use 75% less energy to operate and emit less heat
- Dual-motor BSC design offers an extended life expectancy compared to traditional AC motors
- Larger mini-pleat H14 HEPA filters and balanced airflow plus eight-inch work aperture increase filtration efficiency and extend filter life

Each package includes the cabinet, a manual adjustable height stand, a factory-installed UV light and one set of armrests.

Description	Mfr. No.	Cat. No.	Price
10-Inch Work Aperture			
1300 Series A2 BSC Package, 3 ft.	1323	13-261-334	\$9,746.00
1300 Series A2 BSC Package, 4 ft.	1375	13-261-222	\$10,313.00
1300 Series A2 BSC Package, 5 ft.	1371	13-261-338	\$11,746.00
1300 Series A2 BSC Package, 6 ft.	1377	13-261-223	\$12,426.00
8-Inch Work Aperture			
1300 Series A2 BSC Package, 3 ft.	1342	13-261-342	\$9,746.00
1300 Series A2 BSC Package, 4 ft.	1335	13-261-312	\$10,313.00
1300 Series A2 BSC Package, 5 ft.	1353	13-261-346	\$11,746.00
1300 Series A2 BSC Package, 6 ft.	1337	13-261-313	\$12,426.00

OCEAN TEMPS MAY PREDICT HEAT WAVES

50 DAYS OUT

By Christina Phillis

Transport yourself back to the summer of 2012. The heat wave that occurred was one of the hottest and longest-lasting in United States history. Yet the forecast issued by the National Oceanic and Atmospheric Administration for that summer predicted normal temperatures in the Midwest and Northeast U.S. This forecast was wrong not once but three times that summer with major heat waves occurring in late June, mid-July and late July.

A team of researchers set out to identify what triggers heat waves like the ones witnessed that summer so they could be more accurately predicted in the future. According to their findings, which will be published in the journal *Nature Geoscience*, patterns in Pacific Ocean temperatures can help to predict heat waves up to 50 days in advance. The specific pattern to look for is warmer-than-average ocean water butting up against colder-than-average ocean water. Depending on how well formed the pattern is the odds that extreme heat will follow can more than triple.

Study Method and Results

Postdoctoral researcher at the National Center for Atmospheric Research (NCAR) and lead author of the study Karen McKinnon and her colleagues started their research by dividing the U.S. into areas that experience extreme heat at the same time. The largest block, home to both major cities

and farmland, stretches across much of the Midwest and up the East Coast. It did not take them long to find a pattern between extreme heat in the Eastern U.S. and global sea surface temperature anomalies. One such pattern was found above 20 degrees north latitude in the middle of the Pacific Ocean, roughly the same latitude as the United States. The phenomenon, which scientists have named the Pacific Extreme Pattern, appears not only when it is already hot in the Eastern U.S., but in advance of a heat wave as well.

To test the effectiveness of this prediction method, the team of researchers looked at temperature data collected from 1,613 weather stations across the Eastern U.S. between 1982 and 2015, as well as sea surface temperatures for the same time period. They focused their analysis on the hottest days of the year for that region, which usually occur between June 24 and August 22. When the warmest 5% of weather stations in that region reported temperatures 6.5 degrees Celsius (11.7 degrees Fahrenheit) above average, those occurrences were defined as extreme heat.

By “hindcasting” each year in the dataset, researchers attempted to see if they could retrospectively predict extreme heat events during the summer of 2012. Using the ocean pattern scientists were able to predict an increase in the odds – from about 1 in 6 to 1 in 4 – that a heat wave

would strike 50 days in advance. The odds that a heat wave would occur on a particular day increased to better than 1 in 2 for a well-formed pattern when they looked 30 days out.

Using this method also allowed researchers to predict extreme heat for individual weather stations, located mainly in the middle of the country. The reasoning behind their success in predicting heat waves in this region, explained McKinnon, is that the domes of hot air associated with heat waves tend to be centered on that area of the country.

Since the typical seasonal forecast is only able to predict general trends for an entire summer as opposed to individual days, this new method has the potential to improve upon traditional forecasting measures. “It’s been very hard to get accurate, long lead-time prediction,” Noah Diffenbaugh, a climate scientist at Stanford University who wasn’t involved with the research, told *Scientific American*. “This paper is kind of extending our potential to have this longer time-scale predictability.”

Societal Effects of Extreme Heat

As more and more heat is trapped by greenhouse gases and the warming of the planet continues, it is predicted that heat waves will increase in occurrence



and intensity. The future impact this will have on agriculture, infrastructure and vulnerable populations is becoming more concerning. The ability to make long-term weather predictions will be that much more important, giving farmers, cities and utilities more time to prepare and make decisions to manage the risk.

The heat wave that occurred in the summer of 2012 cost an estimated \$31.5 billion due to the drought it caused and the intensity of the heat. A *Time* article that ran in the summer of 2012 described more specifically some of the potential effects of high heat and droughts. According to that article, some of the effects include an increase in the price of food as animals and crops die out, hazardous travel conditions due to buckling roads, and large strains being placed on healthcare systems that have to deal with an increase in heat-related illnesses. A study conducted on a 2006 California heat wave reported an increase of 16,000 emergency room visits and an increase of 1,200 hospitalizations during that period.

Next Steps

It's still not clear to researchers why sea surface temperatures in the Pacific Ocean predict heat in the Eastern U.S. One possibility is that sea surface temperatures initiate weather patterns that cause the

heat. Another possibility is that one does not cause the other and they are just two different results of the same phenomenon.

Learning how the two are connected using sophisticated computer models will be the next step for McKinnon and colleagues at the NCAR. The results of this study also could lead to the possibility of predicting other weather events further in advance such as cooler-than-average days and extreme rainfalls.

“The results suggest that the state of the mid-latitude ocean may be a previously overlooked source of predictability for

summer weather,” McKinnon told *Science Daily*.

As soon as this year, the team of researchers from the NCAR will try using ocean patterns to make forecasts in real time. Although the forecast track record using this new method may have been good over several years, there are a variety of other factors that affect the weather. Michael Ventrice, operational meteorologist with The Weather Company, told *Scientific American* that this is an intriguing possibility and a good case study in understanding whether or not this prediction method truly works.

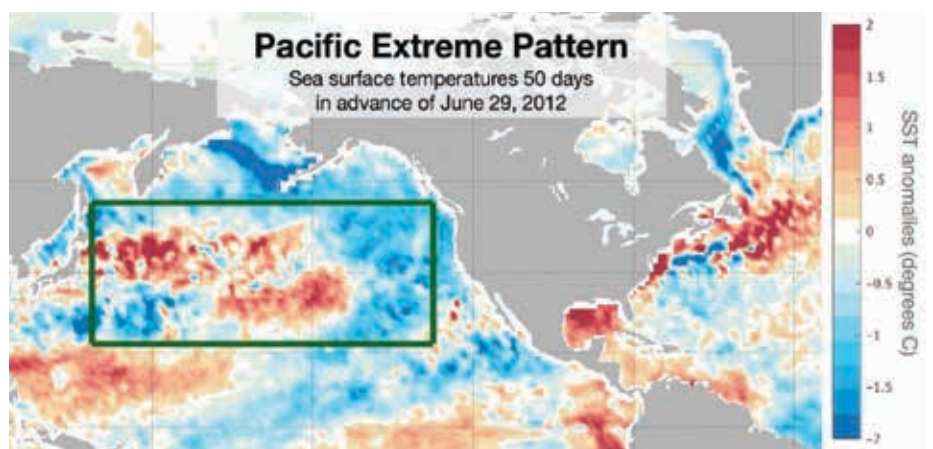


Image via NCAR/UCAR/McKinnon.

Save \$250 with Purchase



Fisher Scientific accumet AB Benchtop Meters



Purchase an AB250 pH/ISE meter for the same price as an AB150 pH meter — that's \$250 in savings. No redemption required.

- Selectable pH resolution of 0.1, 0.01, or 0.001
- Compact size conserves valuable bench space
- Large display shows measurement and temperature at all times
- Automatic temperature compensation (ATC) in Celsius or Fahrenheit
- Graphic display with adjustable backlight
- Date and time indicators — to meet GLP
- Password protection
- Optional stirring probe accessory (Cat. No. 13-620-BSP) with five speed settings
- Graphic LCD display with adjustable backlight
- Automatic buffer recognition
- Calibrate with preset buffer groups or custom buffers
- Optional calibration reminder with high/low alarm
- 500-point memory — log manually or in timed intervals
- Plain language prompts
- Easily view calibration data
- 100 to 240V power supply includes multi-plugs
- Select preferred language for display — choose from English, German, Chinese, French, Italian and Spanish

WARRANTY:

Meters: Three years parts and labor

Electrodes (included with meter kits): One year parts and labor

Specifications and Ordering Information

pH Mode	
Range	-2.000 to 20.00 pH
Resolution	0.1/0.01/0.001 pH
Accuracy	±0.002 pH + 1 LSD
Buffer Sets	USA: 2.000, 4.010, 6.997, 10.013, 12.000 NIST: 1.678, 4.010, 6.865, 9.184, 12.460 DIN: 1.090, 3.060, 4.650, 6.790, 9.230, 12.750 FSCI: 1.000, 3.000, 6.000, 8.000, 10.000, 13.000 CUSTOM: Any 2-5 values, ≥ 1.0 pH unit apart
Slope Display	Yes, up to 5 different slopes with offset
Temperature Compensation	Automatic or manual (0 to 100°C/ 32 to 212°F)
mV Mode	
Range	±2000.0 mV/ Rel. mV
Resolution	0.1 mV
Accuracy	±0.2 mV or ±0.05% whichever is greater
Offset Adjustment	Up to ±150 mV
Temperature Mode	
Resolution	0.01°C/ 0.01°F
Accuracy	±0.03°C/ ±0.05°F
Calibration	Offset in 0.1° increments; offset range ±5°C/ 9°F
Output	RSD-232 (phono plug) mini-B ISB, stirrer
Memory	500 data sets, viewable
Datalogging	Manual, timed (selectable every 3 to 3600 seconds) Printer or CVS format
Cal Due Alarm	Yes, user selectable from 8 hours, 16 hours, and 1-31 days
High/Low Alarms	Yes, user selectable, visual and audible

Model	Includes	Cat. No.	Price	Special Price
AB150 Kit	Meter, TRIS Compatible pH/ATC Electrode (13-620-631), Electrode Arm, RS-232 and USB Cables, 100/240V Power Supply and Manual	13-636-AB150	\$1,059.34	\$1,059.34
AB250 Kit	Meter, TRIS Compatible pH/ATC Electrode (13-620-631), Electrode Arm, RS-232 and USB Cables, 100/240V Power Supply and Manual	13-636-AB250	\$1,314.00	\$1,059.34



AC600 Series Chemical Workstations

Standard Features:

- Microprocessor control with audible and visible alarms — filter saturation and face velocity
- 360° visibility
- Ideal for low-volume chemical applications

Ductless Chemical Workstation	Cat. No.	Each
AC632A 32" Workstation	36-100-4271	\$3,450.00
AC632TA 32" Workstation, Tall Version	36-100-4272	\$3,850.00
AC648A 48" Workstation	36-100-4274	\$4,500.00
AC648TA 48" Workstation, Tall Version	36-100-4275	\$4,850.00



Polypropylene Ductless Fume Hoods

Standard Features:

- Microprocessor control with audible and visible alarms — filter saturation and face velocity
- Bonded carbon filters — no dust
- Excellent chemical resistance

Polypropylene Ductless Fume Hood	Cat. No.	Each
AC3000 36" Ductless Fume Hood*	36-101-6457	\$6,200.00
AC4000 48" Ductless Fume Hood*	36-101-6458	\$6,900.00
AC5000 60" Ductless Fume Hood*	36-101-8784	\$8,000.00
AC6000 72" Ductless Fume Hood*	36-100-4284	\$8,900.00

* Filters sold separately, application worksheet required



PowderSafe Balance Enclosures

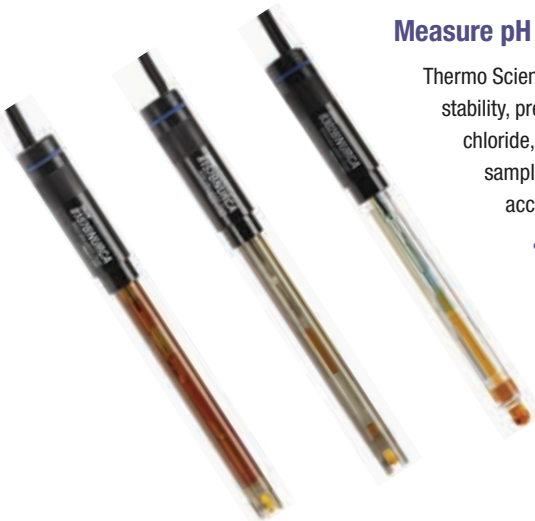
Standard Features:

- Horizontal HEPA-filtered airflow pattern
- HEPASafe filtration system for simple and easy maintenance
- Thermally fused design for vibration reduction and balance stability

PowderSafe Balance Enclosure	Cat. No.	Each
AC730C 32" Balance Enclosure	36-100-4292	\$6,500.00
AC740C 48" Balance Enclosure	36-100-4293	\$7,500.00

Outstanding Stability, Precision and Response

Thermo
SCIENTIFIC

Thermo Scientific Orion ROSS Ultra Triode pH/ATC Electrodes


Measure pH and Temperature with One Electrode

Thermo Scientific Orion ROSS Ultra Triode pH Electrodes combine integrated temperature measurement with the stability, precision and quick response of the ROSS Ultra line. The double-junction design is free of silver and silver chloride, protecting your sample from contamination and making the electrodes compatible with TRIS buffers and samples containing organics. Orion ROSS Triode Electrodes are designed to help you achieve greater flexibility, accuracy and precision for your pH-measurement needs.

- Reduce time waiting for pH readings — ROSS Ultra electrodes stabilize to 0.01pH within 30 seconds in 6.86 buffer between 25°C and 75°C
- Have confidence in the accuracy and reproducibility of your results, even with demanding samples
- Maximize your budget with a two-year warranty on refillable models and an 18-month warranty on low-maintenance models

Description	Mfr. No.	Cat. No.	Price
Orion ROSS Ultra Triode pH/ATC Electrode, Epoxy Body, Low Maintenance, Gel-Filled, 1m Cable, BNC Waterproof and 8-Pin MiniDIN Connector	8107BNUMD	13-641-981	\$506.28
Orion ROSS Ultra Triode pH/ATC Electrode, Epoxy Body, Low Maintenance, Gel-Filled, 3m Cable, BNC Waterproof and 8-Pin MiniDIN Connector	8107UWMMD	13-641-982	\$507.75
Orion ROSS Ultra Triode pH/ATC Electrode, Epoxy Body, Low Maintenance, Gel-Filled, 1m Cable, BNC Waterproof and RCA Thermistor Connector	8107BNURCA	13-642-675	\$284.40
Orion ROSS Ultra Triode pH/ATC Electrode, Epoxy Body, Refillable, 3m Cable, BNC Waterproof and 8-Pin MiniDIN Connector	8157BNUMD	13-643-201	\$581.05
Orion ROSS Ultra Triode pH/ATC Electrode, Epoxy Body, Refillable, 3m Cable, BNC Waterproof and 8-Pin MiniDIN Connector	8157UWMMD	13-643-202	\$590.43
Orion ROSS Ultra Triode pH/ATC Electrode, Epoxy Body, Refillable, 1m Cable, BNC Waterproof and RCA Thermistor Connector	8157BNURCA	13-642-676	\$332.40
Orion ROSS Ultra Triode pH/ATC Electrode, Glass Body, Low Maintenance, Gel-Filled, 1m Cable, BNC Waterproof and 8-Pin MiniDIN Connector	8302BNUMD	13-641-780	\$578.94

Experience the Benefits of Going Headless

Thermo
SCIENTIFIC

VersaCool Refrigerated Bath Circulator


The new Thermo Scientific VersaCool refrigerated bath circulator is designed to help address your daily challenges, so you can stay focused on what matters most: uncovering the answers to science's most perplexing questions. Its unique headless design creates more space for your samples, allowing the VersaCool bath circulator to be used as a water bath as well. The small footprint will give you plenty of room to work, and the smart tools and features simplify your daily tasks, from remote monitoring to an integrated energy-saving mode.

Visit www.fishersci.com/versacool for more information.

Student-Friendly Spectrophotometer

Thermo
SCIENTIFIC

Thermo Scientific SPECTRONIC 200

The Thermo Scientific SPECTRONIC 200 Visible Spectrophotometer brings new possibilities to student education.

- Trusted live display supports current experiments
- Full spectrum scan mode finds peaks in seconds
- Removable sample compartment for easy clean-up
- Measure in square or test tube cuvettes



Cat. No.	Price
14-385-491	\$2,095.00



Density and Refractometry

Titration

Melting Point

pH & Electrochemistry

Power the Bench

Extraordinary Solutions to Fuel Your Work

METTLER TOLEDO's family of analytical solutions is designed with your work in mind. The foundation? Quality products from a trusted provider. Take the bench to the next level with the data handling, security and user guidance of LabX® software and the expertise of the industry's largest factory-trained service organization, highest-rated technical support, and our at-the-ready applications team.

► www.fishersci.com/mettlertoledo

METTLER TOLEDO

Remote Monitoring Wherever You Go



TraceableLIVE Datalogging Thermometers

The simple, efficient and reliable way to stay connected to your critical environments.

- Remotely monitor temperature and more by connecting to existing Wi-Fi
- Alerts: temperature alarm, connectivity interruption, low battery
- Cloud-based applications — web, Android and iOS data visibility
- Temperature range: -50 to 60°C, accuracy: ±0.25°C, resolution: 0.01°
- All probes have a 10-foot cable

Once the setup is complete you can:

- Set alarm parameters for device remotely
- View current conditions in your lab from anywhere
- Generate data reports in real time
- Assign user access for the whole team

Traceable Certificate

Multi-point calibration on an individually-numbered Traceable Certificate assures accuracy from an ISO/IEC 17025:2005 (1750.01) calibration laboratory accredited by A2LA. It indicates traceability of measurements to the SI units through NIST or other recognized national measurement institutes (NMI) that are signatories to the CIPM Mutual Recognition Agreement.



With TraceableLIVE, you're always connected to your lab through your smartphone, tablet or personal computer.

Description	Cat. No.	Price
With Two Probes in Bottles (patented)	15-079-615	\$250.00
With One Probe in a Bottle and One Bullet Probe	15-079-616	\$248.00
With Two Bullet Probes	15-079-617	\$242.00
With Two Stainless-Steel Probes	15-079-618	\$267.00

Oil-Free, Low Maintenance



Fisher Scientific MaximaDry Pumps

No more downtime is necessary to add or change pump oil. Enjoy quiet, reliable operation without the mess of oil or the operating costs and environmental problems associated with water aspirators.

- **Corrosion-resistant materials** — The thick, solid PTFE resin heads will not peel or corrode when exposed to most aggressive solvents. The sturdy FPPM valve system handles occasional liquids without degrading performance
- **Quick and easy setup** — Be up and running in minutes. Everything connects together without tools or fittings. All that is needed is three-eighths inch I.D. tubing
- **Compact, stylish design** — For convenient access, your MaximaDry oil-free pump fits easily where you need it — on your bench or inside your fume hood



13-880 Series

Head Configuration	Capacity (L/min.)	Vacuum	Pressure	Motor	Dimensions (L x W x H)	Cat. No.	Price
Single Stage	20	75 torr	15psig	1/6hp	13 × 6.5 × 8.5"	13-880-14	\$1,610.00
Single Stage	40	65 torr	15psig	1/6hp	15 × 6.5 × 8.5"	13-880-16	\$2,170.00
Two Stage	20	6 torr	15psig	1/6hp	15 × 6.5 × 8.5"	13-880-18	\$2,080.00
Two Stage	35	6 torr	15psig	1/3hp	16 × 7 × 9"	13-880-20	\$2,760.00
Two Stage	35	1.5 torr	15psig	1/3hp	16 × 7 × 9"	13-880-22	\$3,925.00

Wash Faster, Save Money

Labconco ScrubAir Pipette Washer/Dryer

Still using the traditional siphoning method to wash, rinse and oven dry your volumetric pipettes? Switch to the eco-friendly ScrubAir to get faster, thorough cleaning with percolating action.



- Uses direct injection of detergent, water and air for the optimal clean
- Accommodates 12 to 60 pipettes
- Dries quickly with compressed air in four hours
- Optional built-in heater dries in two hours
- Takes 85% less time
- Uses 98% less water
- Automated and programmable wash, rinse and dry times
- Less glassware handling required
- Portable — may be connected to a sink faucet
- No separate oven required

Special Offer

Purchase a ScrubAir through December 31, 2016, and receive a complimentary case of KIMAX glass pipettes and a Starbucks gift card.

Description	Cat. No.	Price
Without Heater		
115V, 50/60Hz, 2A	10-359-210	\$3,035.00
230V (N. Amer.), 50/60Hz, 1A	10-359-214	\$3,035.00
With Heater		
115V, 50/60Hz, 10A	10-359-211	\$3,798.00
230V (N. Amer.), 50/60Hz, 6A	10-359-215	\$3,798.00

Contact your Fisher Scientific representative for information on additional models, options and accessories.

Ultrasonic Liquid Processing



Fisher Scientific Sonic Dismembrators

Four models of Sonic Dismembrators are available to accommodate a wide range of applications and sample volumes. Popular new applications include dispersing nanoparticles and shearing DNA.

Applications

- Cell disruption
- Homogenization
- Nanotechnology
- DNA fragmentation

Features

- 50 to 700w
- Process 0.2mL to 1000mL
- Programmable pulse mode
- Variety of probes and accessories

Model	Power Requirements	Cat. No.	Price
50	50w	FB50110	\$2,260.00
120	120w	FB120110	\$3,410.00
505	500w	FB505110	\$4,660.00
705	700w	FB705110	\$6,040.00



Versatile Mixing

Thermo
SCIENTIFIC

Thermo Scientific Thermal Mixer

The new Thermo Scientific Thermal Mixer offers variable speeds and temperature control, making it perfect for a variety of applications.

- **Temperature Control Range:**
-15°C below ambient to +100°C
- **Shaking Speed:** 250 to 1,400rpm
- **Orbit Diameter:** 2mm
- Compact
- Quick heat-up and cool-down rate



Description	Cat. No.	Price
Thermal Mixer with Block for 1.5mL Tubes	13-687-717	\$2,906.00
Thermal Mixer with Block for 2mL Tubes	13-687-718	\$2,906.00
Thermal Mixer with Blocks for 0.2mL and 1.5mL Tubes	13-687-719	\$2,906.00
Thermal Mixer with Blocks for 0.5mL and 1.5mL Tubes	13-687-720	\$2,906.00
Thermal Mixer with Blocks for 96-Well Microplate/0.2mL Tube Strips	13-687-721	\$2,906.00

Precise Vacuum for Rotary Evaporation

WELCH
by Gardner Denver

Welch Self-Cleaning Vacuum System

These Welch PTFE diaphragm pump systems provide reproducible vacuum with intuitive controls and fast reaction to foaming and bumping. Automatic self-cleaning purge at shutdown enables consistent, fast pump-down and extended diaphragm life.

- Strip DMF fast with 2 torr, 35L/min models
- Corrosion-resistant, PTFE (oil-free) diaphragm pump
- Programmable model stores five methods for two solvents
- Patented technology
- All models are 35L/min, 115V 60Hz



Description	Cat. No.	Price
Model 205, Analog Gauge, 9 torr	01-129-19	\$4,190.00
Model 2026, Analog Gauge, 2 torr	01-257-120	\$4,850.00
Model 2027, Digital Gauge, 2 torr	01-257-121	\$5,250.00
Model 2028, Programmable, 2 torr	01-257-154	\$6,590.00



Better than Ever

Ohaus MB Moisture Analyzers



With the OHAUS MB Series of moisture balances, moisture analysis has never been easier. The MB90 and MB120 feature a halogen heating system that distributes heat uniformly over samples, speeds up the drying process, and delivers fast, precise results. For more advanced moisture analysis, the MB120 features a temperature guide, improved storage capacities, and a simple user management system, providing precision and efficiency in any lab.

- Robust housing and die-cast base offer easy, tool-free cleaning
- Intuitive touchscreen display with real-time drying curve and icon-driven menu for ease of use

Visit www.fishersci.com to learn more.

Description	Cat. No.	Price
MB90, Capacity: 90g, Readability: 1mg, Moisture Readability: 0.01%	01-922-165	\$3,400.00
MB120, Capacity: 120g, Readability: 1mg, Moisture Readability: 0.01%	01-922-164	\$4,190.00

Simple. Dependable. Accurate. Fast.



Sartorius Mark 3 LTE Moisture Analyzer



The Mark 3 LTE delivers fast and accurate measurement of moisture or solids, so you can adjust your processing cycle in minutes, not hours.

- One-button operation
- Free programs supplied
- Thousands of pre-established material settings for pharmaceutical, food, chemical, wastewater, cosmetics, ethanol, pulp and paper, and paint and coatings
- Store up to 60 programs and 999 sample results
- Capacity: 40g
- Balance resolution (repeatability): 0.001g (+/- 1mg)
- Heat source: four parallel infrared quartz cylinders
- Temperature range: 30 – 210°C (one-degree increments)
- Method: loss on drying
- Result units of measure: weight, % moisture, % solids, % volatiles, fuel moisture, PPM
- Power requirements: 90-250VAC 50/60Hz self-adjusting power supply
- Two-year warranty
- Each controller can be used with up to four heater modules

Contact your Fisher Scientific sales representative for a two-week trial of a Sartorius product at your location.

Description	Mfr. No.	Cat. No.	Price
Mark 3 Controller	LMA100PA-000U	14-559-013	\$2,080.00
Mark 3 LTE Heating Module	LMA100SQ-000U	14-559-015	\$3,635.00

Buy a Crimper, Get a Case of Serum Vials or Bottles

WHEATON

WHEATON Automatic Crimping Tool

Buy a high-performance WHEATON automatic crimper before September 30, 2016, and you'll receive a complimentary case of serum vials or bottles.

WHEATON's new a.C.t. high-performance crimping tool features interchangeable jaws and can store nine separate programs for different caps and cap sizes. Its lightweight, ergonomic design and automatic action help reduce the strain and injuries associated with manual crimping and decapping tools.

- Ergonomic design engineered to save time
- Electric power for high-volume operations
- Provides fast, consistent results
- Lightweight and easy to operate
- Stores nine crimping or decapping programs

Description	Size	Cat. No.	Price
High-Performance Crimping Tools			
Without Jaws		02-915-010	\$1,324.29
Crimper Jaw	20mm	02-915-011	\$1,736.29
Crimper and Decapper Jaw Set	20mm	02-915-012	\$2,222.36
Flip Cap Crimper and Decapper Jaw Set	20mm	02-915-013	\$2,222.36
Crimper Stand		02-915-023	\$185.63
High-Performance Jaws			
Crimper Jaw	8	02-915-018	\$380.31
Crimper Jaw	11	02-915-014	\$380.31
Decapper Jaw	11	02-915-015	\$380.31
Crimper Jaw	13	02-915-019	\$380.31
Decapper Jaw	13	02-915-020	\$380.31
Flip Cap Crimper Jaw	13	02-915-021	\$380.31
Crimper Jaw	20	02-915-016	\$380.31
Decapper Jaw	20	02-915-017	\$380.31
Flip Cap Crimper Jaw	20	02-915-022	\$380.31
Clear Serum Vials			
2mL, 7 x 13mm	144	06-406-37	\$80.70
3mL, 7 x 13mm	144	06-446C	\$82.30
5mL, 13 x 20mm	144	06-446D	\$105.20
10mL, 13 x 20mm	144	06-406-38	\$119.70
20mL, 13 x 20mm	120	06-446E	\$139.70
Amber Serum Vials			
2mL, 7 x 13mm	144	06-446G	\$103.10
5mL, 13 x 20mm	144	06-446H	\$126.00
10mL, 13 x 20mm	144	06-446J	\$147.60
Clear Serum Bottles			
2mL, 7 x 13mm	288	06-406A	\$219.80
5mL, 13 x 20mm	288	06-406C	\$224.80
10mL, 13 x 20mm	288	06-406D	\$321.60
20mL, 13 x 20mm	288	06-406E	\$390.40
30mL, 13 x 20mm	288	06-406F	\$372.20
50mL, 13 x 20mm	288	06-406G	\$607.10
60mL, 13 x 20mm	144	06-406H	\$329.70
100mL, 13 x 20mm	144	06-406J	\$465.70
125mL, 13 x 20mm	144	06-406K	\$657.10
Amber Serum Bottles			
5mL, 13 x 20mm	288	06-402A	\$389.00
10mL, 13 x 20mm	288	06-402B	\$453.30
20mL, 13 x 20mm	288	06-402C	\$514.10
30mL, 13 x 20mm	288	06-402D	\$619.50
50mL, 13 x 20mm	288	06-402E	\$801.20
100mL, 13 x 20mm	144	06-402F	\$590.40



Fisherbrand™
Fits Everywhere in Your Lab

Ergonomic and ESD for Cleanrooms

Fisher Scientific

Fisherbrand Chairs



Fisherbrand Cleanroom Chairs can assist you in becoming cleanroom compliant. Electro-static dissipating (ESD) chairs help keep you free of static charge.

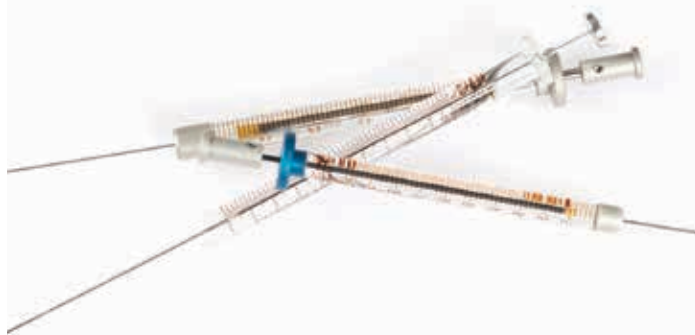
- Vacuum-formed, urethane foam waterfall seats
- Seat and back covered in conductive ESD black or ESD blue vinyl
- Biomechanically engineered for ergonomics
- Backrest adjusts front to back 1.5 inches
- Lumbar support built into back of chair
- Seat height controlled by a pneumatic lift

Description	Cat. No.	Price
Cleanroom Chair with Casters, Desk Height, Blue Vinyl	19-800-100	\$550.00
Cleanroom Chair with Adjustable Arm Rests, Desk Height, Blue Vinyl	14-360-504	\$448.00
Cleanroom Chair with Foot Ring, Bench Height, Blue Vinyl	14-360-519	\$396.00
ESD Chair with Casters, Desk Height, with Casters, Black Vinyl	14-360-618	\$493.00
ESD Chair with Adjustable Arm Rests, Desk Height, Black Vinyl	14-360-622	\$652.00
ESD Chair with Foot Ring, Bench Height, Black Vinyl	19-800-102	\$880.00

Consistent Results, Affordable Price

HAMILTON

Hamilton Autosampler Syringes



Choose Hamilton for Your HPLC and GC Analyses

- Designed to ensure perfect PAL autosampler system compatibility
- Economically designed to give incredible value at an affordable price
- Manufactured to strict tolerances for reproducible results from injection to injection
- Wider solvent range capability for more applications
- New flange alignment design results in fewer bent needles
- Direct needle-to-barrel connection minimizes volume and carryover

Push-Button Security and Application Flexibility

Thermo Scientific

Thermo Scientific Auto-Lock Rotor Exchange

- Secure, trouble-free rotor exchange in as little as three seconds
- Quick switch between applications
- Full chamber access for cleaning convenience
- Available on Thermo Scientific superspeed, general purpose and small benchtop centrifuges



Visit www.fishersci.com/sorvallcentrifugation to learn more.

Powerful Stirring



Heidolph Hei-TORQUE Stirrers



Looking for an all-purpose stirrer with smart technology and high performance to reduce your workload? Powerful Heidolph Hei-TORQUE stirrers accomplish the most demanding tasks while providing the highest safety in combination with a unique user interface.

Leading Safety Standards

- Smooth start operation prevents spills and splashing media
- Optional shaft guard to prevent accidents
- Non-sparking motor for volatile environments

Superior Ease of Use

- Space-saving design
- Maximum power at minimum noise level — maintain speed with changing loads
- Through-shaft design for easier impeller position adjustments
- Multiple impellers and other accessories for customized operation

Reduced Cost of Ownership

- Sealed housing protects against corrosion due to aggressive fumes, liquids and vapors
- High torque for better mixing and reduced process time
- Maintenance-free motors
- Free software updates
- Three-year warranty with an average lifespan of 10 years

Hei-Torque Value

- 2.4" display
- Indication of torque tendencies to monitor viscosity change
- Speed range

Hei-Torque Precision

- 3.2" display
- Display timer, speed, and torque in Ncm
- Self calibrating
- Set start and stop time
- Rpm and torque graphs
- Free control software
- RS 232 or USB interface to save all process data

Description	Mfr. No.	Cat. No.	Price
Value 100	036093030	13-880-450	1,793.40
Value 200	036093050	13-880-451	2,424.45
Value 400	036093070	13-880-452	3,672.90
Precision 100	036093090 (USB)	13-880-453	2,192.40
Precision 100	036093095 (RS232)	13-880-160	2,192.40
Precision 200	036093110 (USB)	13-880-454	3,033.45
Precision 200	036093115 (RS232)	13-880-161	3,033.45
Precision 400	036093150 (USB)	13-880-455	4,110.75
Precision 400	036093155 (RS232)	13-880-162	4,110.75

Controlling Vacuum Levels Just Got Easier



KNF SC920 Programmable Vacuum Pump System

Control and monitor your process from anywhere in the lab.

This vacuum system provides a new level of control and performance for your vacuum applications. It features a wireless remote control unit that operates the pump wherever needed — on the bench or under the hood.

This space-saving, high-performance system is also safe and easy to control.

Four easy-to-use operating modes:

Evacuation Mode — Adjust the speed of the pump from 15 to 100% to fit the needs of your specific application.

Pressure Control Mode — Set the pump speed to your programmed setpoint to eliminate bumping.

Automatic Setpoint Detection Mode — Your SC920 automatically detects the vapor pressure of the solvent and records as the setpoint. Press a button and walk away — the system does the rest.

Function Mode — Program the system to perform a series of steps or follow a specified pump-down curve. Function mode improves repeatability when handling multiple samples.

Description	Electrical Requirements	Mfr. No.	Cat. No.	Price
120V Vacuum Pump System	115V 60Hz	SC920	13-880-90	\$10,315.00

Result: frees you up to get more done with consistent results.

- Extremely quiet, smooth-running, oil-free vacuum system
- You control and monitor everything from up to 60 feet away
- Remote features an intuitive, one-touch knob control
- Control and monitor your process without opening the sash
- Connects to any Windows PC via SC920 USB port

13-880-90



Includes: Microsoft Windows-based software, USB interface to PC

Specifications	
Flowrate	20L/min.
Vacuum	1.5 torr (2mbar)
Control	Wireless Remote and Windows-Based Software
Power/Current Consumption	135w/1.7A
Hose Connection, Pneumatic	3/8" I.D. (10mm)
Hose Connection, Coolant	5/16" I.D. (8mm)
Net Weight	33 lb. (15kg)
Dimensions (L x W x H)	11.6 x 14.4 x 16.7" (29.4 x 36.6 x 42.3cm)
Optional Coolant Valve (Order Separately)	Mfr. No. 117121, Cat. No. 13-880-95

Strong Enough to Crush, Gentle Enough to Mix



Fisher Scientific Bead Mill Homogenizers

Fisher Scientific bead mill homogenizers are ideal for a variety of applications that require grinding, lysing, and homogenization of biological samples prior to molecular extraction.

Bead Mill 4 Homogenizer

- Designed for personal use
- Broad performance range: gentle mixing to high-force homogenization
- Small footprint requires minimal bench space
- Suited for homogenizing up to four samples in seconds
- Reproducible extraction of proteins and nucleic acids
- Simultaneously process 4 x 0.5mL, 4 x 1.5mL, 4 x 2mL or 1 x 7mL samples



Bead Mill 24 Homogenizer

- Simultaneously homogenize up to 24 x 2mL or 0.5mL tubes
- Convenient front-loading tube holder position for ease of use and optimal bead/sample interactions
- Processing range is ideal for soft tissue samples
- No cool-down required between runs (non-stop processing)
- Disposable tubes ensure no threat of cross-contamination
- No sample degradation due to quick processing
- Smaller footprint to maximize bench space
- Run time: 1 to 99 seconds
- Performance range: 3m/s to 5m/s in increments of 1m/s
- Number of cycles: 1 to 9
- CE compliant



Description	Cat. No.	Each
Bead Mill 4 Homogenizer	15-340-164	\$1,995.00
Bead Mill 24 Homogenizer	15-340-163	\$6,900.00

Mix Tubes for Use with Bead Mill 4 and Bead Mill 24		
Soft Tissue Homogenizing Mix Tubes, 2mL	15-340-153	\$150.00/Pack of 50
Hard Tissue Grinding Mix Tubes, 2mL	15-340-151	\$150.00/Pack of 50
Hard Tissue Homogenizing Mix Tubes, 2mL	15-340-154	\$150.00/Pack of 50
Tough Micro-Organism Lysing Mix Tubes, 2mL	15-340-152	\$150.00/Pack of 50

Simply Stunning

EVOS Imaging Systems



Smart systems. Easy cell imaging. Fast results.

Designed to eliminate the complexities of microscopy without compromising performance, the EVOS line makes cell imaging accessible to almost every lab and budget. Find out which EVOS Imaging System is right for you.

Visit www.fishersci.com/evos for more information.

Description	Mfr. No.	Cat. No.
EVOS FL Auto Imaging System	AMAFD-1000	12-463-377
EVOS Onstage Incubator	AMC1000	12-563-550
EVOS FL Imaging System	AMF-4300	12-563-460
EVOS FLoid Cell Imaging Station	AMEFM1000	10-213-412
EVOS XL Imaging System	AME-3300	12-563-450
EVOS XL Core Imaging System	AMEX-1000	12-562-751

Automated Counting, Reduced Consumable Costs

Invitrogen Countess II FL Automated Cell Counter

The Invitrogen Countess II FL Automated Cell Counter offers brightfield and two optional, user-interchangeable fluorescence channels. The fluorescent colors collected are determined by the insertion of individual light cubes. The mounting costs of disposable slides and tips cause many labs to rely on manual cell counting. The Countess II FL instrument was designed to work with a reusable glass slide to help significantly reduce the long-term consumable costs of automated counting. Convenient disposable slides are also available.

The wide variety of light cubes available provides flexibility for multiple research applications, including:

- Cell counting
- Cell viability
- Apoptosis
- Transfection efficiency

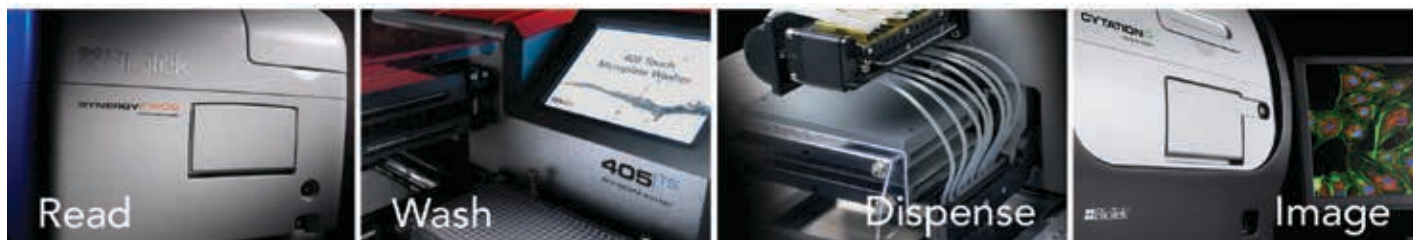
Description	Mfr. No.	Cat. No.	Price
Countess II FL Automated Cell Counter	AMQAF1000	AMQAF1000	\$4,300.00
Countess II Automated Cell Counter	AMQAX1000	AMQAX1000	\$2,400.00
Cell Counting Chamber Slides	C10228	C10228	\$86.50
FL Reusable Slide	A25750	A25750	\$322.00
FL Reusable Slide Holder	AMEP4746	AMEP4746	\$47.00
Popular EVOS Light Cubes			
DAPI	AMEP-4650	12-563-469	\$2,648.42
TagBFP	AMEP4668	12-563-571	\$2,900.00
RFP	AMEP-4652	12-563-471	\$2,648.42
GFP	AMEP4651	12-563-470	\$2,528.20
Texas Red	AMEP-4655	12-563-474	\$2,739.18
Cy 5	AMEP-4656	12-563-475	\$2,860.29
CY 5.5	AMEP4673	12-563-583	\$3,250.00



50% Off

BioStack 4 Microplate Stacker

When you purchase a BioTek reader, washer, dispenser or imager, you'll get 50% off a BioStack 4 Microplate Stacker — a savings of \$9,815. Call your representative for a demo today.



Synergy Neo2 Multi-Mode Reader

Designed for speed and ultra-high performance, this multi-mode reader features patented Hybrid Technology with independent filter and monochromator-based optics.

405 Touch Microplate Washer

Features patented Verify Technology, which runs an automated QC check for manifold blockage, and visually reports any failed wells.

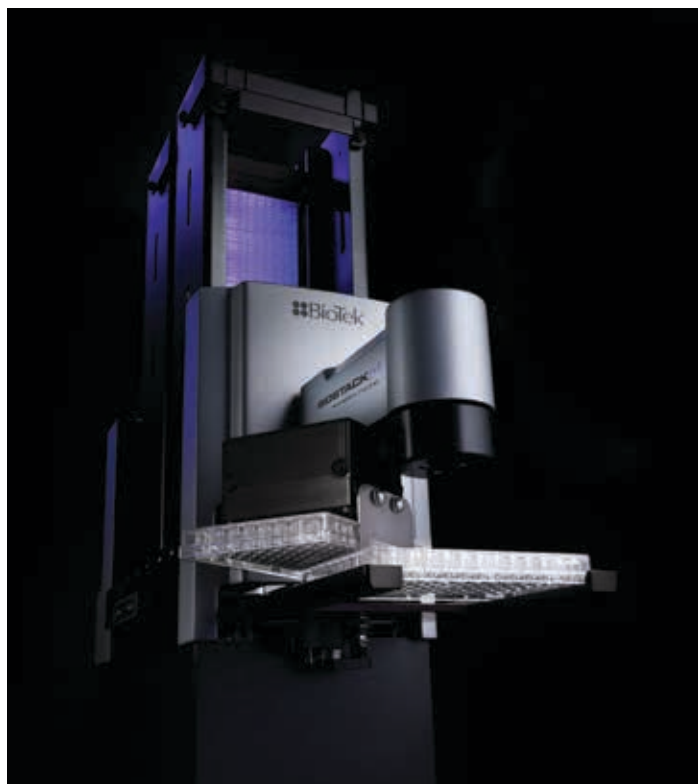
MultiFlo FX Multi-Mode Dispenser

An automated multi-mode reagent dispenser for 6- to 1,536-well microplates. Up to four reagents can be dispensed in parallel without potential carryover.

Cytation 5 Cell Imaging Multi-Mode Reader

A modular, upgradeable multi-mode reader that combines automated digital microscopy and conventional microplate detection. Supports live cell imaging.

Description	Specifications	Cat. No.	Price
Synergy Neo2 Multi-Mode Reader	UV/Vis Abs, Fluor (FI, FP, TRF, TR-FRET) and Lum Detection	BTNE02S	\$36,900.00
405 Touch Microplate Washer	96-Well Washing, 96-Tube Manifold	BT405TSR	\$10,715.00
MultiFlo FX Microplate Dispenser	One Peristaltic Pump Based Reagent Dispensing	BTMFXP	\$14,785.00
Cytation 5 Cell Imaging Multi-Mode Reader	Fluorescence, Brightfield, Color Brightfield Imaging	BTCT5V	\$51,900.00



BioStack 4 Microplate Stacker

A compact and versatile microplate stacker compatible with BioTek's washers, dispensers, detectors and imaging systems. BioStack offers rapid plate exchange speeds to increase throughput and enhance productivity, accommodating assay workflows both with and without plate lids. 10-, 30- and 50-plate stack sets sold separately.

Description	Cat. No.	Price
Stacker with De-Lidding Capability	BTBIOSTACK4PM	\$9,815.00

Offer valid June 1, 2016, to October 31, 2016.

LAB-ON-A-CHIP SHOWS PROMISE

for Diagnostics in Remote Locations

By Christina Phillis

Diagnosing disease in remote areas with limited resources can be a difficult feat. Quantitative testing, which requires the ability to measure not just the presence or absence of biomolecules but the precise concentration, is difficult to perform outside of the clinical setting. Those sorts of tests typically require both large and expensive equipment as well as trained personnel and access to electricity. One essential requirement for healthcare providers in these challenging situations is the ability to produce robust readouts despite harsh environments and user errors. These readouts are essential for detecting molecular markers that aid in the diagnosis of disease.

Researchers in the lab of Rustem Ismagilov, Caltech's Ethel Wilson Bowles and Robert Bowles Professor of Chemistry and Chemical Engineering for Medicine, have invented a new visual readout method for diagnostics using analytical chemistries and image processing. The new method provides unambiguous quantification of single nucleic-acid molecules, and the best part is: it can be performed by any cell phone camera. A paper published in the journal *ACS Nano* describes and validates the visual readout method using RNA from the hepatitis C virus.

"The readout process we developed can be used with any cell-phone camera," Jesus

Rodriguez-Manzano, a postdoctoral scholar in chemical engineering and one of two first authors on the paper, told *Science Daily*. "It is rapid, automated and doesn't require counting or visual interpretation, so the results can be read by anyone — even users who are color blind or working under poor lighting conditions. This robustness makes our visual readout method appropriate for integration with devices used in any setting, including at the point of care in limited-resource settings. This is critical because the need for highly sensitive diagnostics is greatest in such regions."

How It Works

With SlipChip, a microfluidic device, researchers are able to quantify concentrations of single molecules such as DNA or RNA. The portable lab-on-a-chip was invented in the Ismagilov lab several years ago. It consists of two credit card-sized, stacked glass plates with a thin layer of lubricating fluorocarbon between them. The top plate has wells and the bottom plate has wells and ducts on its surface. The sample is added to the interconnected channels of the SlipChip. As the plates are slipped over each other, fluidic paths are formed when the ducts in the lower plates and the wells in the upper plate line up. Complex reactions occur as each well is either joined or separated and reactants

and molecules are either brought into contact or isolated. The design of the chip allows the user to control the sample and prevent contamination.

To take the SlipChip technology further in aiding healthcare workers in remote locations, indicator chemistries are integrated into the wells of the device. Based on whether the result is positive or negative, the wells change color after the amplification reaction is performed. If one of these devices was being used to count HCV RNA, for example, a well would turn blue if it contained an RNA molecule that amplified during reaction and a well would remain purple if it lacked an RNA molecule.

Next, any user hoping to understand the results of this readout would take a picture of the entire SlipChip using a camera phone. The photo is then processed, and the colors detected by the camera's sensor are transformed into an unambiguous readout of positives and negatives. Earlier iterations of the SlipChip technology used a chemical that would fluoresce after a reaction within the well took place. Those readouts are too subtle for a cell-phone camera to detect and require certain lighting conditions, which are difficult to achieve in settings that lack electricity.

The researchers of this study were able to upload their image to a cloud-based server where custom software determined the concentration of a sample and sent the results back in an email. This is a promising new option for healthcare practitioners who find themselves in settings with limited resources.

Worried about protein loss?

You won't worry when you use an Amicon filter.



Recover concentrated protein reliably.

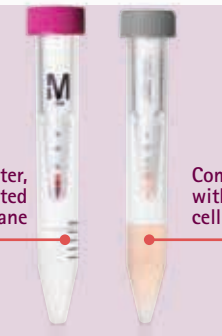
You can't afford to lose your protein. That's why we've engineered Amicon Ultra filters with low-binding Ultracel regenerated cellulose membrane. Unlike membranes in centrifugal filters from other suppliers, Ultracel membrane's properties make Amicon Ultra filters the best for protein concentration.

We can help keep the proteins in your sample!

Contact your local Fisher Scientific representative today to request:

- Amicon selector tool to help you choose the right device for your application
- Free samples of Amicon Ultra filters
- G-force to RPM conversion wall chart

www.fishersci.com/amicon



Amicon filter, Ultracel regenerated cellulose membrane

Competitor A, without regenerated cellulose membrane

The difference starts with the membrane.

Amicon Ultra filters (10 kDa) provided excellent separation of cytochrome c, with dark retentate and clear filtrate.

EMD Millipore is a division of Merck KGaA, Darmstadt, Germany

EMD Millipore, the M logo, Amicon and Ultracel are registered trademarks of Merck KGaA, Darmstadt, Germany.
© 2016 EMD Millipore Corporation, Billerica, MA USA. All rights reserved. BS-GEN-16-12188

Unique Three-Paddle Design for Homogenizing and Mixing Samples for Microbiological Testing



Fisher Scientific Paddle Blender

Use for food safety testing and macro sample preparation.

- For use with standard and filter-type food sample preparation bags
- Easy-to-use digital control system with an auto-run feature
- Large process viewing window
- Easy-to-clean design with drip tray and removable paddles

Power	Cat. No.	Price
115V, 1.25 A	11-452-120	\$5,762.00
230V, 0.63 A	11-452-121	\$5,867.00



Paddle Blender

Designed to Detect Microorganisms in a Wide Range of Applications — Quickly and Accurately!



Thermo Scientific SureTect Real-Time PCR System

The SureTect System combines speed and performance in an easy-to-use, cost-effective platform — giving you results you can trust.

- **Fast time to result:** From sample enrichment to results in less than 24 hours
- **Single enrichment step:** No secondary enrichment or regrowth required for faster, simpler testing
- **Easy-to-use:** Few pipetting steps, pre-filled lysis tubes and freeze-dried PCR pellets, with no centrifuge or vortex required for sample preparation
- **Streamlined protocol:** Facilitates processing of multiple assays in the same run for maximum efficiency
- **Superior PCR technology:** Probe-based, real-time assays for unparalleled sensitivity and specificity
- **Simple, intuitive software:** Enables rapid, straightforward PCR setup, automatic data interpretation and traceability of results
- **Small instrument footprint:** Fits easily into laboratory environments, where bench space is at a premium



AOAC-RI Performance Tested Methods Approved for All Available Assays



Description	Cat. No.	Quantity	Price
PikoReal 24	PT0500	Each	\$31,124.03
Salmonella Species Assay [†]	PT0100A	96 Tests/Kit	\$1,119.15/Kit of 96
Listeria Monocytogenes Assay [†]	PT0300A	96 Tests/Kit	\$1,110.19/Kit of 96
Listeria Species Assay [†]	PT0200A	96 Tests/Kit	\$1,075.97/Kit of 96

[†]Granted Performance Tested Methods status by the AOAC Research Institute

Note: Products not available through Fisher Scientific in the Canada.

The Power of Simplicity

Sartorius Claristep Filtration System



Preparing samples by clarification is an essential step prior to nearly all analytical techniques. This filtration step to eliminate particles is crucial for maintaining the integrity of chromatography columns and maximizing their operation. Sartorius has developed a new, easy-to-use and straightforward filtration setup. The manually operated Claristep Filtration System, consisting of a station and filter units, offers a novel way for clarifying your samples prior to analysis.

The patent-pending design features unique grooves in the station's lid and matching guide ridges on Claristep filter units to enable intuitively correct alignment and convenient handling of the system.

- Process up to eight samples simultaneously
- No syringe required
- No need for a vacuum source
- For low sample volumes ranging from 60 μ L to 600 μ L
- Hold-up volume <30 μ L



Description	Mfr. No.	Cat. No.	Price
Filter, 0.2 μ m	17C07FT-96	14-556-010	\$240.00/Pack of 96
Filter, 0.2 μ m	17C07FT-480	14-556-011	\$1,033.00/Pack of 480
Filter, 0.45 μ m	17C06FT-96	14-556-012	\$240.00/Pack of 96
Filter, 0.45 μ m	17C06FT-480	14-556-013	\$1,033.00/Pack of 480
Station	17C-M8	14-556-014	\$340.00
Single Tray	17C-S1	14-556-015	\$79.00

Have the Cell-Confidence to Walk Away



BioTek BioSpa 8 Automated Incubator

BioSpa 8 is an automated incubator linking BioTek readers or imagers together with washers or dispensers for full workflow automation of up to eight microplates. Real-time control and continuous temperature, CO₂/O₂ and humidity-level monitoring, along with lid handling, ensure an ideal environment for cell cultures during all experiment stages, with no manual intervention. BioSpa's software, which features customizable text or email notifications and alerts, also relieves the need for onsite monitoring. The software's session timelines and environmental reports allow quick scrutiny of the process and system status. BioSpa 8 automates assay workflows by repeated manipulation and storage of microplates containing live cells or temperature-sensitive reagents. Link one washer or dispenser, one plate reader or imager, or one of each for start-to-finish workflow automation. BioSpa 8 is ideal for efficient automation of short- or long-term cell-based and other temperature-, gas- and humidity-sensitive processes.



EL406 Washer Dispenser

BioSpa 8 Automated Incubator

Cytation 5 Cell Imaging Multi-Mode Reader

- Full unattended workflow automation integrating sample prep with detection/imaging for up to eight plates
- Real-time temperature and CO₂/O₂ control and monitoring with humidity monitoring alleviates common problems associated with assay failure
- Continuous recording of environment conditions and customized notifications allow detailed assay monitoring and analysis
- Compact system integration fits in biosafety cabinet, providing the ultimate cell assay protection
- Uncomplicated software and simple integration for rapid implementation with a short learning curve

Walk-away confidence with cell-based assay workflows:

- Drug absorption
- Cell culture QC
- Cell proliferation
- Apoptosis
- Cytotoxicity
- 3D cell culture
- Cell migration and invasion
- Fluorescent protein detection
- RNA expression

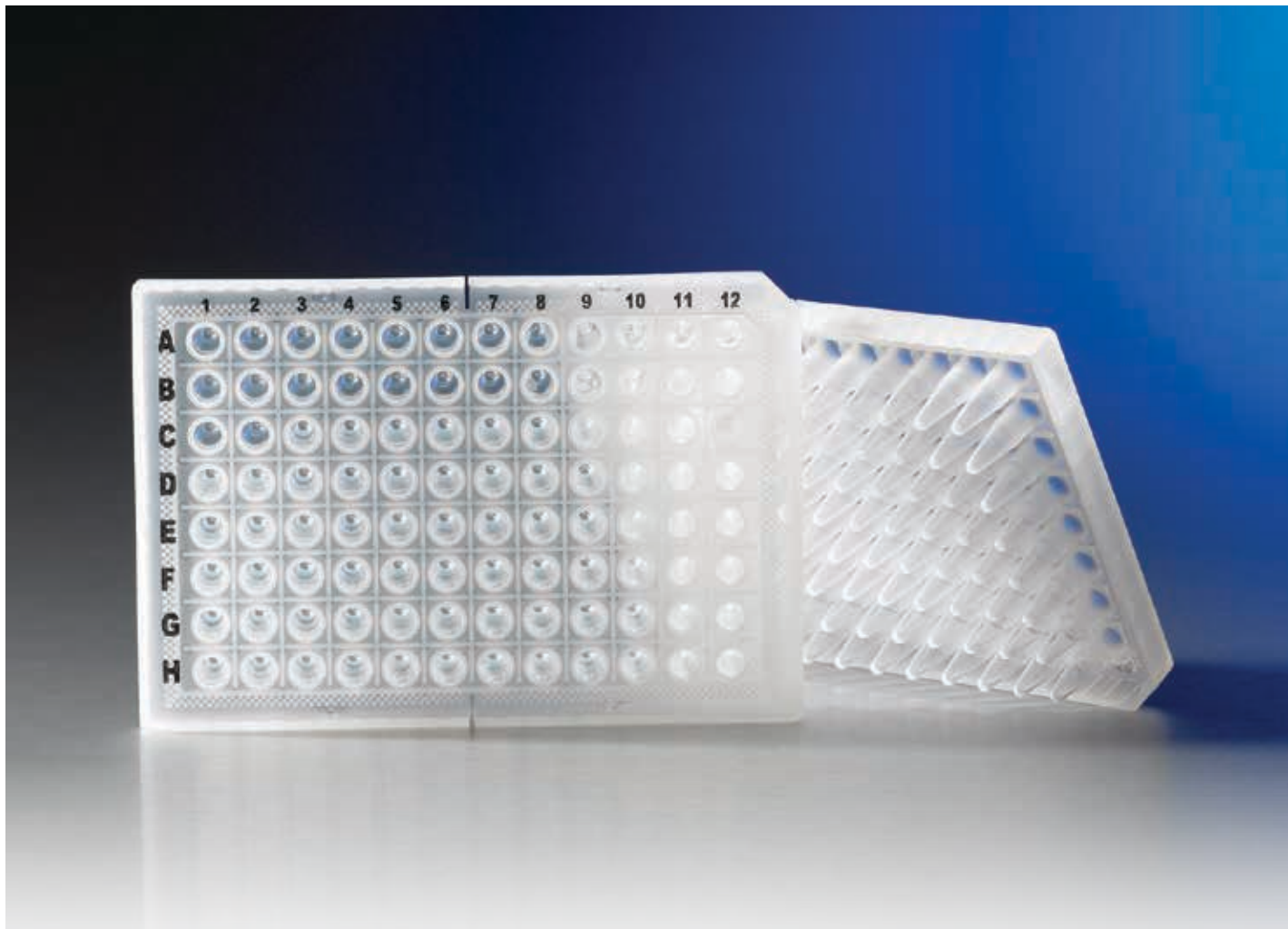
Description	Mfr. No.	Cat. No.	Price
With Control and Monitoring	BIOSPA	11-120-550	\$39,900.00
With CO ₂ /O ₂ Control and Monitoring, Water Pan and Humidity Monitoring	BIOSPAG	11-120-551	\$46,900.00

Starts Flat. Stays Flat.

Axygen PCR Microplate

Improve the efficiency of your high throughput PCR analysis with the new Axxygen automation-compatible PCR microplate.

- Remains flat — does not distort during and after thermal cycling
- Unique features minimize heat evaporation
- Easy sample tracking and labeling
- Compatible with most major thermal cyclers, sequencers, or automation liquid handlers — no need to transfer to a new plate



Visit www.corning.com/lifesciences for more information.

Contact your Fisher Scientific Sales Representative to see how you can get a complimentary automation-compatible PCR plate.

Description	Cat. No.	Price
Automation-Compatible PCR Microplate, 96-Well, 200µL, Half-Skirted, Clear	14-223-400	\$174.50/Case of 50



nl new lab
su start-up
program

Set Your Lab in Motion
2016

Congratulations on your new lab!

We'd like to help you get started.

Let the 2016 Fisher Scientific™ New Lab Start-Up (NLSU) Program work for you as an effective, economical way to obtain special time- and money-saving offers on the supplies you need.

For more information and to apply, go to:

www.fishersci.com/newlab (U.S.)

| www.fishersci.ca/newlab (Canada)





300 Industry Drive
Pittsburgh, PA 15275



How Safe Is Your Lab?

In honor of **National Safety Month** this June, we'd like to hear about the products you use to keep your lab safe.

Email your photos or videos to labreporter@thermofisher.com by August 19th, 2016, and you could be selected to receive a few of our favorite products for your lab.

All entries become property of Thermo Fisher Scientific and may be used in, but not limited to, the Lab Reporter publication.

For Healthcare customers, please note that the value of the special offer that the Customer may receive under this program is a "discount or other reduction in price" to Customer under section 1128B(b)(3)(A) of the Social Security Act (42 U.S.C. 1320a-7b(b)(3)(9a)). Accordingly, Customer shall disclose this and any other discounts or other reductions in price received under this program under any state or federal program which provides cost- or charge-based reimbursement to Customer for the products or services purchased under this program. Please contact your Fisher Scientific Sales Representative for cost savings.

The factual representations regarding the products accurately reflect the manufacturers' representations to Fisher Scientific. To the extent permissible, Fisher Scientific will make available to its customers the manufacturers' warranties. The sole and exclusive liability of Fisher Scientific shall be refund of the purchase price or replacement of the product. In no event shall Fisher Scientific be liable for incidental or consequential damages. **FISHER SCIENTIFIC EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.** Prices may change without notice. Prices are U.S. list prices — pricing may vary in Canada. Content and printed prices subject to confirmation by your Fisher Scientific Sales Representative. Telephone calls may be monitored as part of Fisher Scientific's quality process.

© 2016 Thermo Fisher Scientific Inc.
All rights reserved.
Trademarks used are owned as indicated at www.fishersci.com/trademarks.
Litho in U.S.A. 16-0807 05/16
BN0510164