

Do Plastic Implants Affect Drug Action?

To cut down on the time and expense involved in testing thousands of laboratory animals with new drugs, short term tests are being used to uncover whether or not the potential drugs are toxic. As one possible short term test, Arland Carsten and Daniel Benz, Medical, have been developing an experimental system that uses human cells in plastic diffusion chambers implanted in mice which are exposed to specific drugs. However, they have found that the plastic implant and the drugs being tested somehow work together to change the drugs' effectiveness. This alteration of drug action may be of consequence to humans beings receiving drug therapy after surgery to implant a plastic organ, like an artificial heart.

"Asking, 'What this plastic heart or other artificial implant in a person is doing to the drugs that they are giving the patient?' is to extrapolate far beyond the original intent of our research," admits Benz, "But some interesting questions arise. If a plastic implant changes the action of drugs used after the surgery, then someone should know about it. Recalibration of drug dosages for post-surgery plastic implant patients would be required.

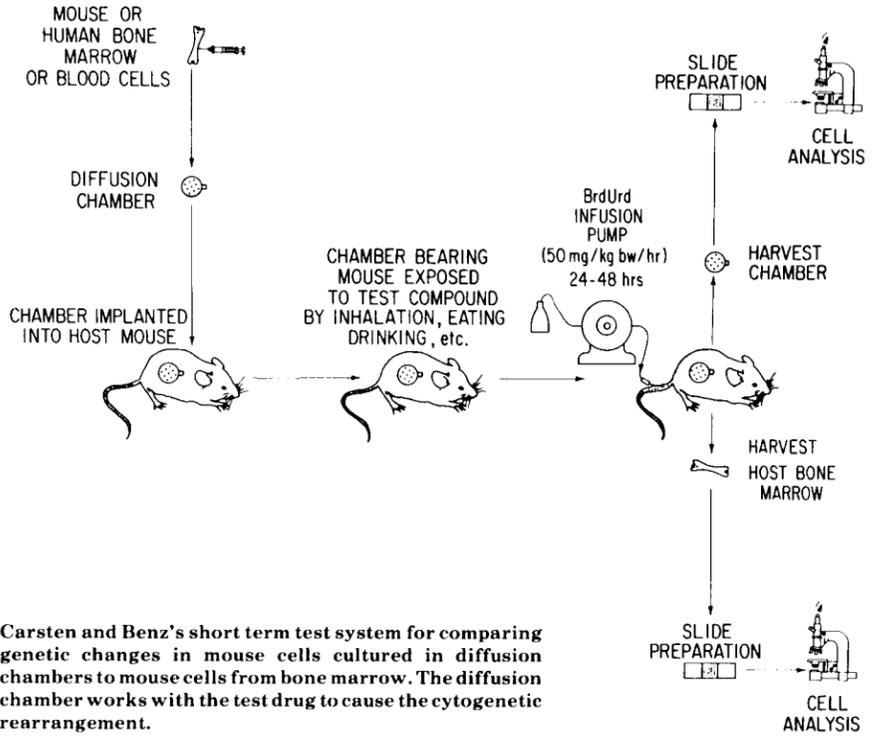
"Our hypothesis, which is mostly arm waving right now, is that perhaps the body senses this foreign object, and sets up an inflammatory or immune response that is causing the cells to metabolize more quickly. Increased metabolism causes drugs to be utilized or detoxified more efficiently. All we know now for certain from our work is that a diffusion chamber affects metabolism on its own; and placed in the one specific strain and species of animal we've tested so far, the diffusion chamber works together with two drugs we have tested to stimulate more genetic changes in the cells we've looked at."

"Benz and I began our collaboration in 1980 with the goal to evaluate the effects of environmental pollutants on human cells in diffusion

chambers," explains Carsten. "To calibrate our short term test system, we selected two cancer drugs because they are known to cause measurable changes in the DNA in human and animal cells." It was in calibrating the system that Carsten and Benz discovered the synergistic effect caused by the diffusion chamber interacting with the drugs.

Benz and Carsten's short term test involved putting freshly obtained human cells in a diffusion chamber, placing the chamber in a mouse, treating the mouse with a drug, and then looking at the human cells within the chamber for the effects of that drug. "For obvious reasons, you can't test human beings with a chemical agent until you can extrapolate from animal studies what amounts of it are safe and toxic," says Benz. "Using diffusion chambers is quicker and cheaper than the usual animal studies. In addition, our test system is relevant to people because the chamber contains human cells, and the chambers are in mice which metabolize chemicals in ways similar to human beings."

"The concept to grow cells in a diffusion chamber inside another animal



Carsten and Benz's short term test system for comparing genetic changes in mouse cells cultured in diffusion chambers to mouse cells from bone marrow. The diffusion chamber works with the test drug to cause the cytogenetic rearrangement.

is not new: a Russian scientist first attempted this in 1887," comments Carsten, who recently compiled a diffusion chamber review paper listing 409 references. "The idea is that the host animal will supply the cells with nutrients and remove the waste products of cell metabolism without affecting the foreign cells in the chamber." The first modern diffusion chamber of the type now in use by Carsten and Benz was implanted into

a host animal in 1954. Carsten began diffusion chamber studies at BNL in 1969.

Before Benz and Carsten used human cells, they wanted to know if cells in an animal treated with a drug would be affected simply by having a chamber implanted. So they compared mouse bone marrow cells in drug-treated mice without diffusion chambers, to the cells of those mice (Continued on page 3)



Arland Carsten (second from right, standing) and Daniel Benz (center, seated) with medical associates Graham Hook (left), Marta Nawrocky (second from left), and Carol Luke (right), and semester student John Sampson.

Say It With Graphics

Before a reactor system begins operation, the Nuclear Regulatory Commission (NRC) must be confident that the safety of that system has been adequately evaluated. In the area of advanced reactors, the NRC is analyzing breeder reactor systems, in which the reaction produces more fissionable material than it consumes. To address this concern, the Reactor Safety Research Division of BNL's Department of Nuclear Energy has created a computer simulation code specifically for the safety analysis of breeder reactor designs. Based on results generated by the Super Systems Code, or SSC, computer analyst Bob Kennett produces computer graphics that simulate different breeder reactor designs, which show system parameters and allow investigations of potential problems which may occur.

The computer graphics reproduced here were drawn on a color terminal from data compiled by Kennett, Bill Horak and Jim Guppy. One is a flow diagram of the heat transport system in a pool-type fast breeder reactor, similar to some now in use in Europe;

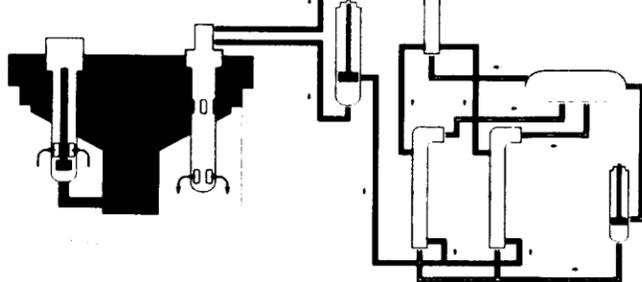
the other flow diagram shows the heat transport train for the Fast Flux Test Facility (FFTF). The FFTF, which is used to test advanced fuel materials, is in operation at the Hanford Engineering Development Laboratory, Richland, Washington. Kennett says the SSC is being used to analyze this design in order to validate the computer code itself, by comparing the code's results to those found in

actual reactor performance.

Two different techniques produced slides of the graphics shown here. To create a color slide of the generic system, Kennett first developed the slide's layout on the color terminal. He then transmitted the computer-generated image to Graphic Arts, where it was run through the COMp80 micrographics system. This procedure provides extremely high resolution,

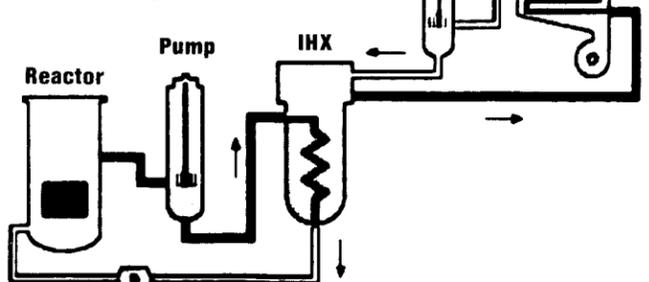
but requires some lead time, as developing is a tricky procedure done only in New York City. When time is critical, and if he is willing to sacrifice some resolution in the process, Kennett has another option. He can transmit the graphic from his terminal to a tiny TV screen located in a 35 mm camera unit, snap his picture and have the film processed quickly. That's how this FFTF diagram was created.

Generic Hot Pool Heat Transport System



Flow diagram for the heat transport system in a pool-type fast breeder reactor. Note the high resolution achieved in this computer graphic, generated by Graphic Arts' COMp80.

FFTF Heat Transport Train



Check Valve

Flow diagram of the heat transport train for the Fast Flux Test Facility (IHX and DHX indicate intermediate and dump heat exchangers, respectively).

Reporter's Notebook: Skiing Lab Land

The snowfall began at 10:10 a.m. on January 18, and did not let up that Wednesday of work. Expectantly awaiting the word from the Director's Office, we picked up all ringing telephones promptly: any call could be the one. Finally when we received the authoritative utterance, it seemed anticlimactic. I had already decided to go home and come back. With my skis. I was going to spend my "special excused absence" skiing across the countryside as I toured my private 5,265 acre estate once known as Camp Upton, and now called the Brookhaven National Laboratory.

Before I left to get my skis, I made my own telephone call. Extension 2263. Meteorology — Weather Forecast. "What's the air temperature?" I asked. "Twenty-nine degrees, going up to around 30." "How much snow are we going to get?" "Six inches." "What's the forecast for the Lab?" "Snow today and tonight." "What about meteors?" "What?" "Just kidding. Thanks a lot."

My transformation from Public Relations Assistant to Cross Country Skier required a clothing change. Though I'd like to think of myself as the Lois Lane of the Brookhaven Bulletin, I know I'm not Superwoman. So, rather than expose myself to the elements in the glass telephone booth across the street from Berkner Hall, I waited until I got to my apartment to change my clothes.

After shedding my office uniform, I bundled up in the same amount of clothing I usually wear around the house. I layered on a wool jersey jacket over a polypropylene turtleneck, tucked my shirt into baggy wool knickers, and pulled on a pair of thin and tall knicker socks over one pair of thick and short wool socks. It's not that I'm cold blooded; it is just that, as a former New Hampshire resident, I choose not to keep the house very warm in winter.

Marsha Belford skiing her Brookhaven "estate."

Before I could finish equipping myself in a goose down vest, wool hat and mittens, knee-high gaiters, and light leather ski shoes, I had to wax my fiberglass skis. Though waxless cross country skis are sold, I purchased ones which require wax to be applied to the ski bottoms for the skis to grip the snow. I think the crayon-like hard waxes are fun to color on the bottoms of my skis. However, the soft "klisters" waxes used for refrozen granular snow, common to Long Island, are the ski wax version of melted mozzarella. Since the new falling snow was fluffy, my handy dandy, color-keyed waxing chart told me to use a hard wax that day.

The guard at the main entrance looked more intently at the skis on top of my car than at my I.D. card. Beyond



Alan Rubin

the truck route sign on Princeton Avenue, where the blacktop ends and the dirt road begins when both are not paved with snow, I left my car. I could have skied all the way from the gate, but I did not wish to be run over by the trucks plowing, salting, and sanding the site.

I snapped the toes of my shoes into the bindings, picked up my poles, and began my travels into the winter wonderland. The long, slender runners bound to my feet glided over the new powder as I broke a trail beside the unplowed road, down a fire lane, and along power lines. The only other fresh tracks belonged to deer. In this remote tract of the Lab, I was alone in the quiet of winter, insulated by the snow.

Since cross country skiing is a

natural elongation of walking, I alternated having my right arm and left leg ahead of my left arm and left leg. I repeated this diagonal sequence vigorously when I had the energy, and with less vigor, but just as much vim, when I tired. However, a slight slope, a curiosity on Long Island, would renew my energy. I would bound up as far as I could before resorting to the herringbone. I would then turn around, crouch down and lean forward to ski down faster. Of course, I had to turn around again, and shuffle up the incline again to continue on my way.

Winter Olympics, Sarajevo, Yugoslavia, here I come. There I was, in the 50 kilometer Nordic event. "Wait for me!" I yelled to my competitors, but coldly they skied past me with a cruel smile. Even my teammates deserted me. Ah, the loneliness of a slow, long distance skier. What did they say to me in passing? Something about more training?

Just then a doe popped out of the trees, and bounded across the snowy field. I stopped. She stopped. I stared at her from underneath my snowy cap pulled to my eyebrows, and through my icy eyelashes. Her eyes bulged. I took big, quiet belly breaths. She flared her nostrils, and snorted. I listened for her breathing, but I could only hear my own. Her ears perked up. We seemed to talk to each other though we did not utter a word. Then, with a flap of the white underside of her tail on her white fanny, she was off.

I had just taken off my skis and was fastening them on the rack, when a BNL forest green van pulled up and an older policeman rolled down the window. "I saw your trail. Looks like you had fun out there," he said with a smile. I must have looked like the abominable snow woman, as I was covered with the white stuff from head to toe. "Yes, I did." "Is cross country skiing hard to do?" he asked. "It's as strenuous as you make it. You get in shape as you do it. You really should try it." "I've been thinking about it. Maybe I will." "I hope to see you out here soon," I said.

— Marsha Belford

Dear Deer

From all accounts, the deer on site are doing very well this year. During the winter, the white-tailed animals may be seen gathering together in small groups especially in the far eastern and northern parcels of the Lab. When the ground is covered and the deer can't forage for grass, twigs, bark, and shoots, Plant Engineering has been scattering cracked corn and donated vegetables in areas where the trampled snow shows evidence of a deer yard.

Our woodland deer stand about three to four feet at the shoulder, and weigh up to 400 pounds. The adult white-tailed deer has a dull grayish-brown winter coat. The white underside of its tail is held aloft like a banner when the animal is alarmed or running. Does may be seen with their fawns who are in the process of losing their spotted coloration. Twin fawns have been spotted and this, according to wildlife biologist David Riehlman of the N.Y. State Department of Environmental Conservation, means that our deer herd is healthy and well fed.

Since the Lab is not fenced, the deer are free to roam as they please. They seem to like the site, since 80% of it is wooded and therefore offers them protection. In addition, because the site is posted as government property and trespassing of any type, including hunting, is not permitted, the deer are safe from human predators. No deer and automobile accidents have been reported since last July. Since neither the Lab nor State Fish & Game officially "manage" our deer herd, no one knows how many deer live on site. However many there are, they seem to be doing just fine by themselves.



Chosen Sounds/Selected Events

John Henrick Clarke, professor of Black & Puerto Rican Studies at Hunter College, will be the first guest speaker of Black History Month at BNL when he addresses "The African Contribution to the Making of America" in Berkner Hall on Tuesday February 7 at 7 p.m. "I'm going to take black history in America from the top, and begin with early black explorers and adventurers in the new world," says Clarke, who remembers Camp Upton well since he was inducted into the army and spent three months in basic training on this site. "Then I'll discuss the roles black soldiers and others played in the American Revolutionary War and the Civil War. Next, I'll talk about the black contribution to the economic growth of this country. And I'll end with the involvement of blacks in science and technology, as inventors, scientists, and engineers. I hope to make this an informative evening." Admission is free.

That evening as well, a macramé exhibit of the hand knotted works of Ella McLean, Photography & Graphic Arts, and Virginia Eleazer, wife of George Eleazer of Plant Engineering, will take place also in Berkner Hall. Their plant hangers, wall hangings, and other domestic decorations will be on display Monday February 6 through Friday February 10 from 11:30 a.m. to 1:30 p.m. in addition.

His Chosen Sounds, the gospel choir of the Hampton Institute, will join five local church choruses and ensembles in a Gospel Extravaganza at Berkner Hall tomorrow night, February 4 at 7 p.m. Tickets for this performance of inspirational



John Henrick Clarke

black American music, presented by the Afro-American Culture Club as their premier event of Black History Month at BNL, can be purchased at the door of the auditorium for \$6.00 per person. The Hampton Institute gospel choir is composed of students from the 116 year old private college of Virginia who were selected for their "tremendous commitment to the expression of the message in their songs," according to choir director Sylstea Sledge, a Hampton Institute senior majoring in music.

Also in Berkner Hall on Saturday February 4, the Rowlett Trading Company of Freeport will offer an African art exhibit and sale featuring crafts representative of west coast African nations from 7 to 11 p.m.

BROOKHAVEN BULLETIN

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WIS Lecture

Professor Dorothy Nelkin of Cornell University will speak on "Workers at Risk," a research report on workers' perception of chemical hazards, at 3:30 p.m., February 13, Hamilton Seminar Room. The talk, sponsored by Women in Science, is open to the Laboratory community.

Nelkin is a professor in the Cornell University Program on Science, Technology and Society, and the Department of Sociology. She is on the board of directors of the AAAS and the Council for Advancement of Science

Writing. Her research focuses on public controversies over science and technology. She is the author of a number of books including "The Atom Besieged," "The Creation Controversy," and "Workers at Risk." Currently, she is a visiting scholar at the Russell Sage Foundation and a Guggenheim Fellow.

A dinner reception will be held for Professor Nelkin at a restaurant in Patchogue at 6 p.m. Those interested in attending may call Jean Stafford at Ext. 3336 to make reservations. The cost is \$13.

Employee Crafts On Display

The third BERA Members Craft Exhibit opens on Monday, February 6, in Room B, Berkner Hall, and will be on display from 4:45 p.m. to 7 p.m.

Because it is opening night, wine and cheese will be served, and four artists will demonstrate their skills; Donna Trunk — weaving, Phil Miller — wood carving, Vivian Aronson — spinning, and Stephanie O'Grady — stained glass. Among other crafts in the exhibit are quilting, herbal wreaths, macramé, pottery and jewelry.

The exhibit will run until Friday, February 17 and the viewing hours are from 11:30 a.m. to 1:30 p.m. on weekdays. Other demonstrations are planned during this period.

W-2 Forms

The imprint was poor on some of the W-2 forms issued to employees last week. A new set has been run off, and you may either pick up another copy at Payroll, or have one sent to you by calling Ext. 2470.

Lecture Reminder

Melvin Levine, Associate Chairman of the Department of Nuclear Energy, will address the question "How Do You Know What a Reactor Will Do?" at the next Brookhaven Lecture on February 8 at 4:30 p.m., Berkner Hall.

Arrivals & Departures

Arrivals

Roland A. Brocke Physics
Larry S. Fareria DAS
Richard D. Gilbert Chemistry
Michael F. LeBrun App. Math.

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:

Christopher J. Ashton Chemistry
Phillip L. Borzi Dir. Ofc.
Rosemarie Farrell Contr. & Proc.
Mary K. German Chemistry
Joseph F. Risley Plant Eng.
Susan M. Saccardi Staff Svcs.
Sushil K. Satija Physics
Nancy J. Singletary DAS
Victor J. Vitkun Plant Eng.
George S. White Biology

BERA Board Names Committee

A nominating committee has been appointed by the BERA Executive Board to select a slate of candidates for the 1984 BERA Board election which will be held in March. Those appointed were:

Kenneth Asselta, Physics
Robert Brown, Medical
David Comstock, Chemistry
Renee Flack, Director's Office
Dennis Klein, Light Source
Bruce Medaris, Plant Engineering
Lois Marascia, Nuclear Energy
Bernard Silverstein, Health Physics
Marge Stoeckel, Fiscal
McHarrell Thomas, Applied Science

Any employee who wishes to suggest a candidate for consideration is encouraged to do so by contacting a member of the nominating committee before Friday, February 10.

On Wednesday, February 15, the committee will meet to discuss and judge the qualifications of all the nominees, and will select a final election slate consisting of four candidates.

Bowling

Red/Green League

High games were bowled by M. Kelly 232, J. Muller 215, G. Meinken 212, N. Combatti 212, R. Larsen 208/203, L. Jacobson 202.

Purple League

D. Pion rolled a 174, B. Gillette 211, G. Hassell 211, N. Carter 205, J. Petro 201.

White League

J. Griffin had games of 203/211, K. Riker 212, B. Lebitski 201, G. Spira 199, R. Picinich 192, P. Manzella 181/183.

Diners Note

The cafeteria will be closed on Saturday, February 4. On that day, snack bar service will be available from 9 a.m. to 2 p.m. at the Brookhaven Center.

Hospitality News

Stenciling on Fabric will be the theme of the Hospitality Committee's next morning get-together on Tuesday, February 7, from 9:30 to 11:30 a.m. at the Brookhaven Center.

Wives of Laboratory employees, guests and visitors are welcome. Coffee, tea and danish will be served. Please come and bring the children. Babysitting will be provided free of charge.

Cafeteria Menu

Week Ending February 10

Monday, February 6	
Corn chowder	(cup) .65
	(bowl) .75
Ham steak Hawaiian & 1 veg.	1.90
Swedish meatballs over rice	1.90
Hot Deli: Veal patty Parmesan	(bread) 1.95
	(roll) 2.10
Tuesday, February 7	
Chicken rice soup	(cup) .65
	(bowl) .75
Mousaka & 1 veg.	1.95
Ham & broccoli crepes & 1 veg.	1.85
Hot Deli: Top round of beef	(bread) 1.95
	(roll) 2.10
Wednesday, February 8	
Split pea soup	(cup) .65
	(bowl) .75
Sweet & sour pork on rice	1.95
Roulade of beef & 1 veg.	2.25
Hot Deli: Turkey breast	(bread) 1.95
	(roll) 2.10
Thursday, February 9	
Cream of chicken soup	(cup) .65
	(bowl) .75
Veal ragout on egg noodles	1.95
Breaded chicken breast & stuffing	2.10
Hot Deli: Grilled Reuben	1.90
Friday, February 10	
Boston clam chowder	(cup) .65
	(bowl) .75
Batter dip Fish & Fries	1.90
Baked meatloaf & 1 veg.	1.90
Hot Deli: Sausage & pepper hero	2.00

Plastic Implants

(Continued)

having diffusion chambers.

The drugs they tested first were two anti-cancer drugs, mitomycin C and cyclophosphamide, which stop cancer by abruptly changing the tumor's genes, thereby halting its aberrant growth. Drugs like mitomycin C and cyclophosphamide, among other effects, induce exchanges between joined sister pairs of chromatid strands formed by replicating chromosomes immediately before cell division. Graham Hook, Carol Luke, and Marta Nawrocky, associates working with Carsten and Benz, counted the number of exchanges between these sister chromatids to study the effects of the two drugs. They found that the plastic chambers did not by themselves cause more exchanges of DNA between sister chromatids than normal.

However, they also discovered that the drugs caused more sister chromatid exchanges in the bone marrow of the mice having implanted diffusion chambers than in the mice without diffusion chambers. "For some reason, the plastic chamber increases the toxic effect of these drugs," comments Benz.

Carsten and Benz wanted to know if mouse cells within a diffusion chamber would be affected by merely being in that plastic implant. "We took mouse bone marrow cells and put them in diffusion chambers," explains Benz. "We treated these mice with the same drugs, and compared the mouse bone marrow cells in the diffusion chamber with the cells in the bone marrow of the mice from the other two experiments. We thought, if anything, that the diffusion chambers would mute the effect of the drugs on the cells in the chambers because the drugs wouldn't get into the chambers. Well, we were wrong."

The mouse bone marrow cells in the diffusion chambers showed more DNA rearrangement than did the bone marrow cells of mice having diffusion chambers only filled with normal saline. And the latter showed more genetic reorganization than did the bone marrow of mice having no diffusion chambers.

Benz and Carsten wondered whether the anesthesia, or the operation to implant the diffusion chamber, or the solution in the plastic implant,

rather than the diffusion chamber itself, could be responsible for the increased number of sister chromatid exchanges. So they looked at the bone marrow of drug-treated mice not experimented upon; of those given one of two anesthetics; of those given one of two anesthetics and operated upon; of those given one of two anesthetics, operated upon, and implanted with diffusion chambers holding one of two types of media; and of those given one of two anesthetics, operated upon, and implanted with diffusion chambers containing cells.

"We thought that only the mice with the diffusion chambers containing cells would show more sister chromatid exchanges," says Benz. "And again we were wrong. The mice who had diffusion chambers without cells in them showed cytogenetic changes as well.

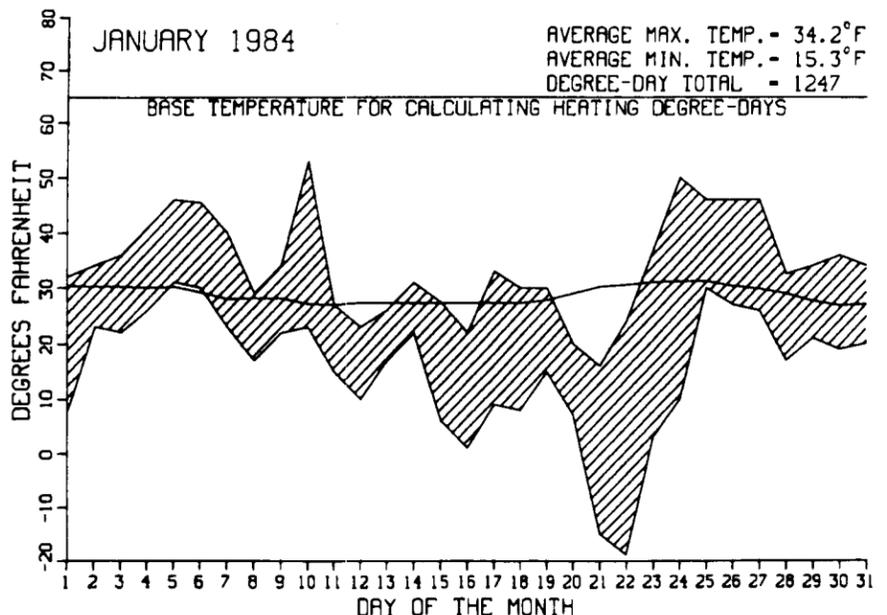
"The implanted plastic diffusion chamber is what is causing the genetic changes in the cells," states Benz. "Somehow the diffusion chamber alters the response of the cells to the chemicals."

Carsten and Benz will be looking for what is specifically responsible for the change in the drugs' effectiveness. A diffusion chamber is made of a lucite ring, two circles of filter paper, and a straight nylon plug. What component of the diffusion chamber is working with the drugs? Or is it a partial or total combination of the diffusion chamber pieces?

Also, the fact that diffusion chambers have synergistically induced more sister chromatid exchanges with anti-cancer drugs has been true in one strain of mice: the BNL Hale-Stoner strain. Does the synergistic effect work in other mice strains, or other animal species? Do other chemicals work together with the plastic implants in the way that the mitomycin C and cyclophosphamide do?

"Each question is a couple of months' work," laments Benz. "And we're getting further and further away from what we wanted to do in the first place: create a short term test with human cells. We weren't looking for this chamber effect at all. But in science, as often as not, you find something you weren't looking for. This time it happened to us with a vengeance." — Marsha Belford

Degree Days at BNL



Classified Advertisements

Autos & Auto Supplies

73 LINCOLN COUPE - loaded, excel. in and out, asking \$1700. 654-5460.
 RIMS - with 5 lugs, fit Chevy Nova, \$8 ea. Jain, Ext. 2710 or 924-5966.
 78 TOYOTA COROLLA - 4 dr. sedan deluxe, a/t, a/c, hi mileage, good cond. \$1800. Ext. 7155 or 3689.
 81 KAWASAKI LTD - 440, black, \$1300. Greg, 289-6519.
 55 FORD - eng. and tranny combo., removing from car, can demo., 272-V8, auto. Tom, Ext. 4664 or 929-3566.
 77 FORD RANGER - am/fm stereo, pb, ps, runs well. 821-9280.
 72 DODGE VAN - auto., 360-V8, windows all around, bench seat, \$1,100; 74 Plymouth Valiant, auto., 6 cyl., runs well, \$900. 727-5403.
 69 FIREBIRD - mechanical and interior excel., engine needs work, restorable or for parts. Ext. 3086 or 878-8689 eves.
 TIRES (2) - snow-studded with Olds rims H-78-15, \$45. Paul, Ext. 4309.
 71 CHRYSLER NEWPORT - runs, best offer; 72 VW Squareback, runs well, \$750. 286-1183 or 924-7238.
 77 FORD T-BIRD - champagne color, fully loaded, excel. cond., \$2500 or best offer. Ext. 3960 or 360-0547.
 70 PLYMOUTH - drive it away, \$200 or barter. Pete, Ext. 4819 or 289-7218.
 77 AMX HATCHBACK - 8 cyl. p/s, auto., good cond., \$1650. 281-8538.
 &S CHEVY WAGON - p/s, p/b, auto. trans., runs well, reg., gas, \$500. Jerry, Ext. 7427 or 475-5591.
 72 VEGA - customized V-8, complete but needs work, price negotiable. Ext. 2364 or 929-8944.
 74 FORD F-150 - auto., p/b, p/s, am/fm stereo, runs well, custom deluxe. 821-9280.
 TIRES (2) - Goodyear, poly/steel radial P195/75R14. Ext. 3919.
 81 DODGE 024 - 4 spd., am/fm cass., good running, great looking, \$3950. Al, Ext. 3302 or 673-3209 eves.
 75 DODGE DART SPORT - 340 c.i., 4 spd., Cragers Dunlop radials, new clutch, stereo, asking \$1700. 732-7288.
 68 FORD FALCON - 90K, \$200, runs well. 732-1913 after 5 p.m.
 62 CHEVY PICK UP - runs well, new bed, tires, front shocks, \$750 firm. Charles, 878-8901.
 75 DATSUN 710 - runs, needs some work on motor, asking \$600, negotiate. 878-8901.
 78 TOYOTA COROLLA - runs well, needs some body work, asking \$1400. 475-5948 after 5 p.m.
 73 CHEVY IMPALA - 4 dr, ps/pb, a/c, am/fm, cruise, runs well, \$400. 744-8894.
 76 CHEVY MALIBU CLASSIC - 87,000 mi., new all weather radials, excel. running cond., asking \$2100. Donna, Ext. 2926 eves or 744-3298 days/wkends.
 GERMAN AUTO PARTS - wholesale prices on new parts for VW, Porsche, Audi, BMW + MB. Augie, 289-4211.
 75 VETTE - ac/ps/pb/pw T-tops, tru spokes, am/fm cassette stereo, excel. cond., asking \$9000. 744-6892 eves.
 RIMS (2) - Pontiac Lemans, 14", 5 hole with tires, \$5 each. Alfred, 744-3792.
 FRONT BUMPER - 75 Chevy Camaro, excel. cond.; Chevy rims (4), good cond., off Chevy Camaro, best offer. Jerry, Ext. 2907 or 758-7365.
 74 260Z - automatic, good cond., Ext. 2537 or 473-1658 after 5:30 p.m.
 70 TOYOTA CORONA - 4 dr., garaged, a/t, a/c, clean, runs well, \$650. 727-6481.
 V-8 VEGA - customized, complete but needs some work, price negotiable. Ext. 2364 or 929-8944.
 MANLEY PISTONS - .043 rings with l.w. pins, 327+ .030, \$150 alum. super rods, \$100. Bill S., Ext. 4434.
 74 TOYOTA CELICA - new tires and brakes, body excel. cond., \$1900 firm. 727-2471 after 5 p.m.
 80 CHEVY CAPRICE - 31K mi., 4 dr., air, like new. 734-7584.

73 CHEVY IMPALA - runs well, body not so good, needs muffler, \$250. Joe, Ext. 4661.

73 VW BUG - excel. running cond., new front end, brakes, mufflers sys., \$1000 firm. Carol, Ext. 2907 or 698-8510 eves.

CHILTON REPAIR MANUAL - 1970-79 Toyota, \$3.50. John, Ext. 5016.

79 DATSUN 210 HATCHBACK - w/snow tires, spare passive alarm system, 35 m.p.g., \$2750. 298-5411 after 6 p.m.

78 CHEVY MALIBU - 2 dr., p/s, p/b, a/c, 1 owner, lots of T.L.C. 298-8601.

77 750 cc HONDA SUPER SPORT - low mi., runs well, many extras. Jim, Ext. 4095.

HONDA CVCC FUEL FILTERS - \$5; oil filters, \$2. Ext. 4095.

77 FORD PICK-UP F-100 - 302/V-8, 3-speed, am/fm cassette, 40 watt booster/eq., 8' cap w/insert, \$3500. John, Ext. 4095.

79 FORD - 6' truck bed, \$250; slowplow blade, 7' and A frame, \$150. Dick, Ext. 3499 or 589-9103.

78 HOND/MC 400 CL HONDAMATIC - new battery, custom seat, crash bar, excel. cond., \$600. Ext. 2172 or 744-4386.

67 FALCON - 3 speed, 4 door, air, radio, runs well. David, Ext. 7646 or 286-8229 after 5 p.m.

396 PARTS - Edelbrock Crower cam, valve, covers, flywheel, bellhousing, clutch p/plate, distributor, stock intake. John Timms, 744-3577 after 5 p.m.

79 CHEVY VAN - 6 cyl., std., orig. owner, excel. cond. 981-0011 after 5 p.m.

67 FORD FALCON VAN - V6, 35,000 mi. on rebuilt engine. 472-4617 evenings.

80 OLDS CUTLASS - diesel, a/t, p/s, p/b, am/fm cassette, immac., 29,000 mi., \$3500. Al, 4645 or 744-0354.

82 HONDA NITEHAWK 750 c.c. MOTORCYCLE, 4 cyl., cerker header only, 4000 mi., excel. cond. \$1350. Ext. 4113.

Boats & Marine Supplies

PROPELLER - 3 blades, bronze, 12" dia. with 3/4" bore, \$10. Muller, Ext. 3057.

PROPELLER - 3 blades, right hand, 14 pitch, 17" dia., 1 1/4" bore, bronze, \$40. Walther, Ext. 4309.

12 VOLT REFRIGERATOR - \$25. Jim, Ext. 7772.

Miscellaneous

TICKET - 1984 NHL All Star Game, 1/21, Meadowlands Arena, best offer. 878-2233 eves.

DESK - 3'x6', walnut formica, 2 leaves, 5 draws, excel. cond., asking \$350; maple kitchen set 42" round w/leaves, 4 chairs, \$100. 289-0615 after 6 p.m.

WINDOW - wood, double-hung, 2'8"x4'2", 6/1 glass with alum. storm-screen unit, \$25. Alfred, 744-3792.

RACER MATE - bicycle training stand and wind simulator pro model, \$100. Jim, Ext. 5160.

ELECTRIC BASEBOARD HOTWATER HEATER - 12 ft., 220 volt, \$35; traverse rod, 12 ft., \$10. 878-2038.

COLOR TV - RCA, 25" console, good cond., \$100. Joe, Ext. 2575 or 281-2767 eves.

DRESSER - colonial style maple, 50"x18"x30", 8 drawers, \$100; stereo amplifier-receiver, Pioneer SX636, \$90. Ext. 2041.

CAST IRON WAGNER POTS (2) - w/cast iron covers, 3 1/2 qt. and 6 qt., good for woodburning stoves, \$40 for both. 878-6637.

FUR COAT - lamb, off-white, new, size M, \$150. Linda, Ext. 7745.

DEEPWELL PUMP - 1 h.p., Starite with 42 gal. glass lined tank, like new, \$100 takes all. Ext. 2705 or 286-1062.

CONTEMPORARY LIVING ROOM SET - 1 couch, 2 chairs and end tables, 1 coffee table, 2 lamps, \$1000. 363-2070 evenings.

ANTIQUE BRASS BED - canopy, queen size, \$800. Ext. 7225 or 929-6748.

BENNINGTON PINE DINING ROOM CHAIRS - fair cond., \$50 for set of 4. Harry, Ext. 3783.

SMALL POTBELLY STOVE - will fit in fireplace, square top for cooking, \$60; tea wagon, dark wood, excel. cond., \$100. 473-5855.

REFRIGERATORS - \$100 and \$25. 286-3903.

PORCELAIN WALL SINK - and 2 top laundry sinks, good cond., \$10 each. 289-3848.

COMPLETE KITCHEN - 13 ft. walnut cabinets and counter-tops, electric stove, refrigerator, and dishwasher, good cond., \$850. 286-2221 after 3 p.m.

RED BRICKS - asking 20¢ each. Dick, Ext. 4313 or 929-4551 after 6 p.m.

IMPERIAL UPRIGHT FREEZER - 19 cu. ft., commercial, locking door, excel. cond. 325-1599.

KEROSENE HEATER - Radiant King, model #RK120, like new, \$75. 732-3876 or 698-9301.

PHILHARMONIC TICKETS - Avery Fisher Hall, May 18 - 8:00 p.m., Rousset, Debussy, Ravel; Erick Leinsdorf, conductor. Mike, Ext. 4414 or 475-8406.

MAPLE HUTCH - 60", \$425; 54", \$350; cocktail table, \$200; pooltable 4'x7' slate with access., \$400. Dick, Ext. 4313 or 929-4551.

SKI PANTS - men's, 34R, wool and poly. stretch, dark blue, never worn, \$75. Ext. 4727.

OVEN - Caloric, built in, also 4-burner counter top stove 20 yrs. old, best offer. Ext. 4727.

TAKUMAR LENSES - screw mount, 1.4f/50mm, 3.5f/28mm, 3.5f/135mm, filters accessories, free, spotmatic body, \$175. Tom 929-3566.

ANTIQUES - record player, \$150; dresser with 4 draws 3'x20", \$160; all nighter 24 hrs. wood stove, \$450. Bob, 281-5605.

CORDUOX 20 BASS ACCORDION - \$450, baby carriage, car bed, \$25; white formica kitchen set, \$125. 289-1754.

SOFAS (2) - rust color, standard size, 1 love seat. 929-4603.

DRUMS FOR KEROSENE - 55 gal., \$15/ea., \$25/2. Ext. 7505 or 689-8605.

FREEZER - Gibson, good cond., \$125. Don, Ext. 2043.

TOOLS - tripod pipe vise, stock dies 1/2"-2", bender 1"-2", reamer cutter, \$200. 472-4228.

RADAR DETECTOR - Fox XK, detects hot X and K bands, adjustable sensitivity, \$45. Ext. 3242 or 7192.

SINK - bathroom, w/cabinet; marbleized black and gold trim, cabinet 35"x36"x21 1/2", new; faucet, gold plus waste assy, decor 4881, new, \$60. Lola Kopp, Ext. 2265.

SNOW BLOWER - 8 h.p., Sears, \$200; hydraulic swivel crane, \$250; gas engine generator 1250, \$200, jointer planner, \$150. Bob, 281-5605.

CLUB CHAIR - upholstered, good cond., \$75. Frank, Ext. 3121.

RECLINER - brown tweed, Herculon, like new, best offer. Karen, Ext. 2950.

CHILD'S CAR SEAT - good up to 40 lbs, like new, \$30. Jim, Ext. 7772.

SHOWCASES (2) - walnut base, glass top, 18"x68"x40", \$125 each. 727-5004 days.

WATER PUMP - deep well, 1 h.p., ideal for lawn or garden, fully tested, \$50. Jay, Ext. 2022.

TYPEWRITER - Hermes Rocket, light weight, portable, works well, \$25. Sue, Ext. 3675.

COLOR TV - 25" RCA, console, needs tubes; stereo, Magnavox, am/fm, records, console, good cond. Joe, Ext. 2575 or 281-2767.

SPACE HEATER - never used, small humidifier, used twice, \$25 each or best offer. S. Spark, Ext. 4111.

JACKET - woman's red wool, elegant, never worn, orig. price \$160, best reasonable offer. Janet, Ext. 2345.

DINING SET - traditional, oval table, 3 leaves, 6 chairs, pads, addtl. glass top; 6' buffet, \$500. Nancy, Ext. 7996.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Sale

MEDFORD - 2-3 bdrm., 1 1/2 baths, 2-car garage, 3/4 acre. Ext. 2486 or 325-0681 after 6 p.m.

SOUND BEACH - L ranch, 4 bdrms., 2 baths, dining room, family room, study room, eat-in kitchen, living room with heatalator fireplace. Ext. 2022.

For Rent

MIDDLE ISLAND - 1 bdrm. apt., private entrance, furnished, utilities incl., \$300/mo., single male preferred. 732-9851.

MASTIC BEACH - 3 bdrm. ranch, att. garage, full basement, near shopping, \$525. 281-4940 evenings.

PORT JEFFERSON STATION - large studio apt., fireplace, suitable for working couple or single, no pets, \$450 incl. all. 928-5470.

PORT JEFFERSON - Feb. thru June, 2 bdrm. house, lv, eik, winterized sunroom, rent negotiable. 331-5745.

Car Pools

RONKONKOMA - 2 drivers to join existing pool near LIE Exit 59, 8:30-5:00. Victor, Ext. 2395.

PORT JEFFERSON - wishing to join or start car pool. Claudio, Ext. 2853.

BELLPORT - need individual to complete 4-person car pool, 8:30 to 5:00. George, Ext. 7654.

SHOREHAM - would like to start or join an existing pool. Mark, Ext. 7708.

Wanted

WHITE SPOKE RIMS - to fit Chevy 4-wheel drive. Eddie, Ext. 2021.

SKIS - bindings, poles and boots, womens size 8. 399-1679.

GROLSCH BEER BOTTLES - empty or full. Bill, Ext. 2906 or 929-6189.

PEOPLE - interested in PSI benefit performance of "Chicago." Thurs., Feb. 23. Sharon, Ext. 3513.

RUG/CARPET - to help recently relocated family, price negotiable. 399-6585 evenings.

ARIENS SNOW BLOWER - 5 or 7 h.p. Walter, 878-8967.

TRAINS - Lionel, American Flyer, accessories, any cond. brings good price. Carole, Ext. 3362 or 924-4097 evenings.

TUTOR - will pay/hr. on the micro processor 6502. Ken, 924-4486 after 6 p.m.

HOUSE TO SIT - will house-sit month of June, reliable former BNL employees, prefer Moriches area, references. (904)683-4027, 9034 Gallup Rd., Spring Hill, FL or call locally 878-2691.

TYPEWRITER TABLE - adjustable height. Campbell, 286-3675.

Classified Ad Policy

Deadline is 4:30 p.m. Friday for publication Friday of the following week.

1. The Brookhaven Bulletin's classified section may be used only by active and retired Laboratory employees.
2. All items for sale or rent must be the advertiser's property.
3. Ads for material acquired for resale in association with a full or part-time business cannot be accepted.
4. Ads for the sale or trade of firearms will not be accepted.
5. Ads not carried because of space restrictions will be held for publication in the next issue.
6. Ads are run only once and must be resubmitted if they are to be repeated. One ad per person per week.
7. Property for sale or rent cannot be accepted on this form. Special Real Estate Ad Forms are available at the office of the Brookhaven Bulletin, Building 134.

- For Sale: Autos & Auto Supplies For Sale: Miscellaneous Wanted Lost & Found
 For Sale: Boats & Marine Supplies Car Pools Free

Please print your ad below in 15 words or less using one word per block. Include name and phone number to call.

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Note: The following must be completed for your ad to appear.

NAME (Please Print)

Employee's Signature Life No. Ext.

Send to: Brookhaven Bulletin, Building 134 (Ext. 2345)

Classified Ad Policy Deadline is 4:30 p.m. Friday for publication Friday of the next week.