

EX-Ls

EX-PRESS

Volume 23 Number 4
Fall 2005

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The EX-Ls Board of Directors and members gratefully acknowledge the
Lawrence Berkeley National Laboratory Administration
for their continuing support.

PRESIDENT'S MESSAGE **Gene Binnall**

It has been an honor and privilege to serve the EX-Ls as Second Vice President, then First VP, and now concluding my term as the group's President. I must admit, however, that I look forward to moving on to the more leisurely status of Past-President. To carry on with vigor, the EX-Ls Board has a new slate of officers for 2006 to be presented at the November luncheon. Jose Alonso was unanimously approved by the Board as our candidate for Second Vice President, Janis Dairiki to move from Second VP to First VP, and John Kadyk to move from First VP to President. And I will lose my beloved gavel.

The Board is deeply grateful for the support that we have received from the EX-Ls Members. I personally want to thank the other members of the Board for their hard and dedicated work over the past year. Thanks to Janis Dairiki for heading our nomination search for the 2006 Second VP, and to John Kadyk for providing us with the great luncheon speakers this year. Thank you to our Board members who continue their great work year-after-year, Bud Larsh as Treasurer, Eleanor Dahl as Secretary, Vicky Jared as our new Activities Chairperson, and to Dave Stevens who puts together our Newsletter four times a year, and to Dick Baker our Webmaster and new E-Mail Listmaster (website is at <http://www.lbl.gov/ex-l-express/>).

Thanks also to our active Past Presidents: Bob Fulton and Tom Beales who represent us on the Council of UC Retirees Associations (CUCRA); Tom Beales again who coordinates our luncheons and negotiations with Spengers; Bob Birge, our representative on the UC Retirement Center Policy Board until he passed that job on to me (did I just thank myself?), and to Ken Mirk and Bob Birge who continue to remain active on the EX-Ls Board.

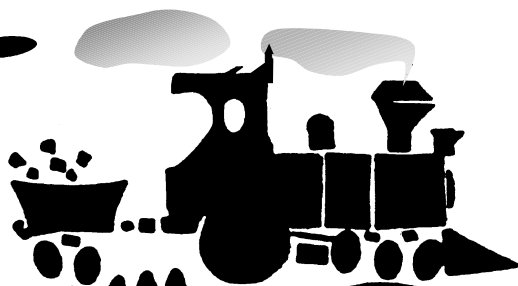
A very special thanks from all of us to Terry Powell in the LBNL Public affairs Office for all of her support, advice, recommendations, coordination with the Directors Office and help in getting luncheon speakers. Our thanks also to our Lab Director, Steve Chu, and to Reid Edwards for their continued support.

We owe the success of our group to many people. Being a part of the EX-Ls Board of Directors has been a very pleasant and entertaining experience.

I would like to conclude by repeating a couple of reminders from the last Newsletter:

- Remember to keep looking for old photos and other memorabilia that can be used in displays at the LBNL 75th Anniversary, probably about October of 2006.
- Remember that you are eligible for no-cost membership with the UC Retirement Center. For more information, go to: <http://thecenter.berkeley.edu/>, or call their staff at (510) 642-5461. You can join on campus at 2 Boalt Hall #7200.

EX·LS Ex·press



2005 Fall Lunch

Date: Thursday, November 17, 2006

Where: Spenger's Fresh Fish Grotto
1919 Fourth St.
Berkeley

Time: No-host Bar: 11:30 AM
Lunch Served: 12:00 Noon

Speaker: Graham Fleming, Deputy Director, LBNL

Subject: Berkeley Lab: A view to the future

Menu: Bay Shrimp Louie Salad/1000 island dressing (with cup of chowder)
Grilled salmon (with dinner salad)
Flatiron Steak w/ mushroom demi-glaze (with dinner salad)

Cost: \$20 per person (PREPAID)

Reservations: Please make checks payable to EX-Ls. Send to
Vicky Jared
4849 John Muir Road
Martinez, CA 94553

**Spenger's management policy makes it absolutely imperative
that they receive reservations by November 14, 2006**

(Reservation slip on last page)

From our July lunch

Reported by John Kadyk, EX-Ls First Vice-President: At the summer luncheon on August 18 we had the privilege and treat to hear an interesting presentation by professor Mina Bissell, who has been doing forefront research on breast cancer for many years at LBNL. She became director of the Life Sciences Division in 1992, and has received numerous citations and awards (*see note at end of this summary) for her creative work, which has importance and validity well beyond her primary field of breast cancer. She has been designated as Distinguished Professor of Genetics and Molecular Biology. The subject of her talk was: “Half the Secret of the Cell is Outside the Cell: The Role of Extracellular Matrix in Normal and Malignant Breast”.

Dr. Bissell began her talk by reminding us that every cell in our bodies has the same genetic information, determined initially during egg fertilization. On developing *in utero*, the cells grow to have very different structures. For example, the nose and elbow have quite different appearance, and function quite differently, yet the cells making up these body parts have the same genes. So the immediate and obvious question is how do different parts of the body “know” to have different forms and functions. How do they distinguish what role they are to play? This “tissue specificity” is fundamental to biological development, and also to the nature of cancer. Of utmost importance, therefore, is how does one study this, and how can one use the discoveries as therapy against cancer.

Dr. Bissell’s background was in chemistry and not in biology *per se*, so in her early work she asked questions that did not follow the strict outline of the textbooks, and this led her to avenues of investigations that might otherwise not have been followed. This “naï ve” approach was an advantage.

Early work (by Rous) showed that material taken from a chicken tumor, when injected into a healthy chicken, would produce a new tumor (this is due to a virus). However, it was found that the material when injected into a chicken embryo would not induce a tumor. This shows that it is not just an oncogene (a cancer-causing gene) that is important in causing cancer, but also the surrounding environment or “context”. This environment is referred to as the Extra Cellular Matrix, or ECM. It is clear that communication or “signaling” goes on between cells and the ECM: In some cases growth of cancerous cells will occur only in the presence of one form but not another form of ECM. Not long ago it had been thought that the ECM, which is formed of collagen and other large molecules, was nothing more than a “scaffold” on which the cells formed their specific structure, and the idea of communication between the cells and the surrounding matrix had not yet been realized.

Of course, such a concept applies to all cells, not just the mammary cells. How does the signaling occur? There are “receptors” on the cell that transmit information from the cytoskeleton of the cell to the cell nucleus, the chromatin, and to the DNA, which alters the function of gene(s). The signaling also goes back the other direction.

Early experiments were done with the mouse as the “model”. Later, experiments were done with human breast material (obtained from reduction mammoplasty operations).

One such experiment demonstrated the importance of ECM. Mammary cells were cultured in a flat plastic culture dish – a two-dimensional (2D) environment - with all the necessary hormones and nutrients to function properly, but the cells did not produce milk. However, adding the ECM, and making a 3D environment, restored the mammary cell function, and milk was produced. This exhibits the necessity of signaling pathways between cells and their surrounding structure. The ECM plays an important role in this signaling, and the mutual interaction with the cell was named “dynamic reciprocity” by Mina Bissell (1982). In order to study this adequately, expertise in many overlapping fields of science is needed: biology, physics, mathematics, etc.

An “assay” is a process of measurement and/or identification. The assay developed by Bissell to distinguish quickly the normal from the malignant cells is used universally (LBL did not realize the important patent potential). The assay is used extensively in the experiments. A new idea emerged: The *structure of tissue* is itself a unit of function, not the cell or DNA: a radical new idea. To test this idea, cells that were assayed as malignant were put into a 3D matrix (ECM) corresponding to breast tissue, and they were observed to reorganize and produce milk, behaving as normal cells. Correspondingly, cells that are assayed as normal became malignant when their ECM structure was disrupted. How do the normal cells remember their mammary gland function, while malignant cells do not? Signals with functional instructions pass through specific receptors on the membrane of the cell. By identifying the receptors (using antibodies), it was found that the relative numbers of these specific receptors were completely different for the two types of cells. Inhibitor antibodies were then used to reduce the number of receptors to the normal level. The result, shown in her slide, was that the malignant cells were transformed into nearly normal cells. Experiments with mice confirmed that malignancy occurs at the 100% level with untreated cells, and is strongly inhibited by treatment with the receptor inhibiting antibody: There were 70% fewer tumors, and a much longer tumor growth time scale. Growth and malignancy were regulated at the level of tissue organization, even with identical genes.

The process was also reversible, by removing the antibodies. In addition to the control of mammary function, it was found that also growth was inhibited, because the receptors talk to each other (in 3D, but not in 2D), so growth was inhibited even though a growth inhibitor was not used. In chemotherapy, it was shown that in a 2D culture both normal and malignant cells were killed by the chemotherapeutic agent, while in a 3D culture, only the malignant cells were killed: The organization of tissue, not the cell genome, determines if the cell is killed.

Mutations are a constant and common occurrence in cells, potentially resulting in cancer. However, Dr. Bissell’s results suggest that intact ECM can help prevent this progression, and destruction of the ECM can be detrimental. Such destruction can happen in a variety of ways: hormone changes, smoking, anything producing oxidizing chemicals, and even what we eat (meat, fat, ...) is important; getting sufficient exercise mitigates some of these effects.

An implication of these discoveries is that there are many different forms of cancer, since malignancy is tissue specific, and therefore cancer therapy must target different pathways in different tissues. Even the same type of malignancy in different people may require a different treatment, because the affected pathways may be different – this is even true for identical twins.

A dramatic demonstration of the effect of structure change was done by subjecting a culture of mammary cells to an enzyme known to decrease the production of ECM molecules. This created a type of altered protein, which then changed the type of cell and produced reactive oxygen species (radicals), which in turn caused DNA mutations and genomic instability.

In summary, the thinking about the mechanism of cancer has changed from the concept of a mutation in the DNA of the cell nucleus to a realization that the surrounding tissue, or ECM, is of great importance. This clearer understanding should lead to better prevention and treatment of cancer.

*On Oct. 4 it was announced by the Office of Biological and Environmental Research (BER) of the Office of Science that Mina Bissell was one of the four winners of the BER Distinguished Scientist Fellowship competition. Each such Fellowship award is for \$250,000 per year, for up to five years. Read about this in the link found in the Today at Berkeley Lab issue for Oct. 4, '05: <http://www.lbl.gov/today/2005/Oct/04-Tue/BER-jump.html>

Luncheon Attendees:

Jose & Carol Alonso

Harriette Atkins

Bill Baker

Dick Baker

Winnie Baker

Gene & Myrna Binnall

Igor Blake

Stan Boyle & Jeanne

Miller

Dick Burleigh

Geores & Katie Buttner

Winnie Corniea

Per & Eleanor Dahl

Sibyl Donn

Andy DuBois

Tom Elioff

Frank & Maxine Garnier

Lee Glasgow

Abe & Marjorie

Glicksman

Don Grether

Paul & Nancy Henrickson

Wini Heppler

Roger & Lois Hughes

Vicky Jared & Karen &

Robert Springsteen

Nylan Jeung

John & Ann Kadyk

Bob & Barbara Kaufmann

Bud Larsh

Branko Leskovar

Ken Lou

Jo Lundberg & Ronnie

Devlin

Ken Mirk

Mack & Ann Morgan

Bob Mortiboy

Barrie Pardoe

Fred Perry

Terry Powell & Loida

Bartolome-Mingao

Don Prestella

Ellie & Gwen Ralph

Ed & Roger Reieux

Sig Rogers

Stephanie Roth

Brenda Shank

Ben Shuey

Elmer Silva

Robbie & Mary Smits

Dave & Sally Stevens

Hugh & June Stoddart

Suzanne Stroh

Gertrude Young

Speaker Mina Bissell &

Martin Jara

Editor's Note

We note with sadness the passing of two life members of the Ex-Ls: Frank Garnier, our first treasurer, and Tanè Nutting, the first editor of the Ex-Press. (Life membership is conferred by the Board of Directors on those whose service to the group has been particularly significant over a span of many years.) Another life member, Shirley Ashley, offers a reminiscence of Tanè below.

I also direct your attention to the list of coming events. It is rare that we find out about coming events sufficiently in advance to make it feasible to list them in the Ex-Press (which is one reason why we established the e-mail distribution list), so it's nice that at least one of these is unlikely to be overtaken by events before you have a chance to know about it.

And as always, articles or ideas for articles are welcome; the deadline for each issue is ten days after the preceding Board meeting (a full year's schedule is listed on the back page). You can contact me at david_stevens@comcast.net, at 1107 Amador Ave, Berkeley 94707, or 510-524-2904.

dfs

Remembering a Friend Shirley Ashley

We all lost a great friend on July 28, 2005. Her daughter wrote "My Mother, Tanè Nutting, died peacefully in her sleep early yesterday. After a long, rich and satisfying life, she was ready."

Yes, we EX-Ls lost a great friend. For those members who knew Tanè, we will miss her. And for those members too young to have met her, I will tell you that she was the spirit behind the forming of this organization. She came up with the idea, and with the help of another LBL retiree, Ted Bowers, she began to make her plans.

She solicited the blessing of Director Dave Shirley. He, no doubt, was caught up with her cheery, enthusiastic delivery, and happily gave her his support. He became an active participant in sponsoring the plan, and announced the forming of the new LBL Retirees' Organization at a Champagne Reception he held honoring retired and retiring employees. The reception was on Friday, September 10, 1982. He then invited Tanè to speak, which she did, as follows:

The moral of this story is, if you're going to speak up, do it in the right places. I don't know whose original idea this joint reunion was, but it was truly inspired. I do know that we owe much to such people as, for starters, Director Shirley, and to the Personnel Department's Kathleen Handron and Maggie Lechner, and many others who searched, typed, and recorded. It is a treat to see you all, and to know that it can happen again without having to go back on the payroll and work a 40-hour week to do so. Getting a current and complete list of LBL

retirees was exceedingly difficult, and we're not at all sure we have succeeded. If anyone has been overlooked, you may be sure it was accidental. The response from those of you who (either wildly or mildly) wish to be a part of an association of retirees was heartwarming. Ted has facts and figures and pertinent information.

Tanè was the editor of the EX-Ls EXPRESS from its first issue (The No-Name News, Vol. 1, No. 1), until the Spring issue 2002, Vol. 20, No. 1, when she handed over the reins to Dave Stevens.

For me, personally, I first met Tanè when I started working at the Radiation Lab in 1947. She became my friend and mentor. She brought to the workplace a spirit of joy and pride. That quality she also continued to express for close to 20 years as editor of the EX-Ls retiree newsletter.

But, my friends, we still bask in her vision when we meet together to break bread and “chew and chat”, as she used to say, and we continue to share memories of the times we spent with the good friends we met at one of the greatest institutions in the world.

Teaching Assistants Wanted

Rollie Otto's group has developed two hands-on science lessons for 5th grade students and that were use-tested at all 11 elementary schools in Berkeley last year. It was a big success but they could use some help with the teaching of the lessons again this year. He is recruiting Berkeley Lab staff and retired staff for this project. He is looking for a commitment to go to one school twice in the winter and spring months. Volunteers would work directly with the students doing hands-on activities that we have developed. We may be able to have a demonstration at the November luncheon, but even if you can't attend the luncheon, give Rollie a call (486-5325) or e-mail him (rjotto@lbl.gov) if you are interested.

Coming Events

1: The Anti-Proton is 50

The 50th anniversary of the Anti-Proton will be celebrated at the Lab on **October 28-29, 2005**, and is at no cost, but registration is required. Contact Jeanne Miller at 510-486-5074 and check out the web site at: inpa.lbl.gov/pbar/pbar.htm

2: Open Enrollment Fair

Loida Bartolome-Mingao, the Health Care Facilitator (HCF) for LBNL would like to invite your attention to the UC East Bay/LBNL retirees benefits open enrollment (OE) fair to be held on Friday, **November 4**, 2005, at the Emeryville Holiday Inn, 8-11 AM.

You should be on the lookout for your OE info packets; they will be in the mail soon.

If you have any OE/benefits questions you can reach the HCF office by calling (510) 486-6997, or e-mail at hcf@lbl.gov

3: The World Year of Physics

LBNL's Saul Perlmutter will give a talk at Berkeley Repertory Theatre's Thrust Stage (the old theatre), 2025 Addison Street, Berkeley from 5:00 - 6:30 pm on Monday, **November 14**, 2005 in honor of the World Year of Physics. In this extraordinary lecture Dr. Perlmutter addresses the evidence for, and cosmological consequences of, an unendingly expanding universe. The lecture is free and is sponsored jointly by Berkeley Lab's Friends of Science and the Chabot Space & Science Center.

E-mail Distribution List

We have established an e-mail distribution list to be used only for late-breaking Ex-Ls news. Inclusion on the list is completely voluntary. If you would like to be on the list, please either e-mail our List Master (Richard Baker [robaker@lbl.gov]) or complete the form below and send it to **Dick Baker, 635 Yuba Street, Richmond, CA 94805**. You may list more than one address, but be aware that all addresses will be used for distributions.)

Please add me to the e-mail distribution list; my e-mail address is:

Signed: _____

Luncheon Tickets

Spenger's has requested that we help expedite luncheon service by placing our luncheon tickets at our places no later than 11:50. Please make sure that they are clearly visible so that the servers can get an accurate count for each table.

**Not a new Ignaague
Vkicy Jeard**

I cdnu'olt blveiee taht I cluod aulacity uesdnatnrd waht I was rdgnieg. The phaonmneel pweor of the hmuan mnid! Aoccdrnig to rscheearch at Cmabrigde Uinervtisy, it de'onst mtttaer in waht oreldr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteres be in the rghit pcleas. The rset can be a taotl mses and you can sitll raed it wouthit a porbelm. Tihs is bcuseae we d'not raed ervey lteter by istlef, but the wrod as a wlohe. Amzanig huh? [Of course, you might have a little trouble with *perverse* and *preserve*, either of which could be 'encoded' as *psreevre*. Ed.]

Trip Report

**Walking in the Catskills is not for wimps
Dave Stevens**

I discovered in late September that I am a wimpy walker. Some of my friends may have realized this for some time, but, out of kindness, forbore to tell me. I, however, on the strength of walking up to the Lab for most of the more than 30 years of my employment there, had developed an exaggerated impression of my prowess as a hiker, which was shattered on a five-day Elderhostel in the Catskill Mountains of New York. It turns out that there is more to Hiking than just walking up a road, however steep it might be. In particular, in the Catskills, there are two other factors to consider: weather and footing. It seems that one generally has a choice between heat and humidity (each hovering about one hundred) on the one hand, and rain (or, in winter, snow) on the other. For my brief sojourn, it was rain. Not usually heavy, but on two of the days quite persistent. Since one of the rainy days was the first day, and the trails are in pretty dense woods, this meant that the already uncomfortable footing was rendered treacherous with wet rocks, wet roots, wet leaves, wet moss, and occasional mud. The mud is only occasional because the footing is most usually rocks and roots covered with leaves and moss. The rocks range in size from baseball to barn, and the slope is such that it's like walking along a streambed pitched at a Marin Avenue slope. As I write this it is three weeks later, and my feet have hardly begun to recover. And my chagrin at my own incompetence was only increased by the group's own Energizer Bunny, one Anna, a four-foot-eleven mother of six whose idea of a rest break was to walk a couple of extra miles while the rest of us massaged our calves.

But I must have taken heart from Lina's experiences as related in the last Ex-Press, because the overall experience was positive. The mountains and valleys are lovely, the colors were beginning to show signs of autumnal spectacularity, the food was elegant and wholesome and tasty, the guides knowledgeable, and the people friendly and enthusiastic. If your idea of heaven is not-quite-scrambling over crumpled bluestone, then this Elderhostel is for you.

In Memoriam

| | |
|----------------------|----------------|
| George Blowers | Albert Borden |
| Rod Byrnes | Hal Dougherty |
| Frank Garnier | Irving Halpern |
| Betty Shandemar Kahn | |
| Emily Medina | Tats Nakae |
| Duane Norgren | Tanè Nutting |
| Clayton Owen | Edward Pollak |
| Thomas Russell | |

>>WELCOME NEW MEMBERS<<

Karen & Robert Springsteen

Membership in EX-Ls is open to all past employees of LBL/LBNL. Annual dues are \$12 per family, forgiven during the calendar year of joining for new members, and are now past due for 2006. New members, please include your name, address, phone number, and e-mail address if you wish to be included in the e-mail distribution list. Also, please include any other information you would like included in the annual membership directory, such as spouse's name, e-mail address, or fax number. Please send your check payable to EX-Ls to

Bud Larsh, Treasurer
610 Devonwood
Hercules, CA 94547

SEE YOU AT THE November 17 LUNCHEON

To: Vicky Jared
4849 John Muir Road
Martinez, CA 94553
Be sure to make reservations by November 14

From: _____

I plan to attend the EX-Ls luncheon >> \$20pp << PREPAID

I will bring ___guest(s). Name(s) of guest(s): _____

Menu Choice(s): Beef ___ Salmon ___ Salad ___

Please make check payable to EX-Ls Total Enclosed: _____

EX-Ls EXPRESS – Fall 2005

Published Quarterly at the end of January, April, July, and October

Editor: Dave Stevens

Deadline for newsletter submittals is 10 days after the preceding Board meeting.

EX-Ls BOARD OF DIRECTORS

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Vice-Pres #2: Janis Dairiki
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Bob Birge Ken Mirk
Igor Blake Conway Peterson
Howard Browne Sig Rogers
Per Dahl Clay Sealy

Calendar of Board Meetings & Luncheons

L: November 17,2005
B: January 12,2005 L: February 16, 2006
B: April 13, 2006 L: May 18, 2006
B: July 13, 2006 L: August 17, 2006
B: October 12, 2006 L: November 16, 2006
B: January 11, 2007 L: February 15, 2007

Board meetings take place in the LBNL cafeteria at 3:45 on the dates mentioned; we welcome attendance by interested members.

Ex-Ls Life Members

Shirley Ashley
Esther Colwell
Inge Henle

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