

## Balancing Work and Life: A Conversation with Mina Bissell

### About Dr. Bissell

Dr. Bissell received a B.A. in Chemistry from Radcliffe College in 1963, an M.Sc. in Bacteriology and Biochemistry from the Harvard University Medical School in 1964, and her Ph.D. in Microbiology and Molecular Genetics from Harvard in 1969. She then moved to the University of California Berkeley as an American Cancer Society Fellow (1970–1972). In 1972, she became a Staff Biochemist at the Lawrence Berkeley National Laboratory (LBNL). She served as Director of the Cell and Molecular Biology Division of LBNL from 1988 to 1992 and as Director of the Life Science Division and Associate Laboratory Director for all of Life Sciences from 1992 to 2002. She achieved the rank of Distinguished Scientist at LBNL once she stepped down as Director. She also serves as a faculty member of four Graduate Groups at the University of California Berkeley and the University of California San Francisco.

Dr. Bissell has received a multitude of awards throughout her career. In 2008 alone she won the Inserm International Foreign Scientist of the Year Award, the FASEB Excellence in Science Award, and the American Cancer Society Medal of Honor. She sits on the Editorial Board of 15 journals, including *Science* magazine; she was a Senior Editor of *Cancer Research* and is still serving as an Associate Editor for *Breast Cancer Research*. She has given an incredible number of plenary and distinguished lectures around the world, including, in 2007, the Novum Lectures at the Karolinska Institutet, Stockholm, Sweden, and the Reece Memorial Lecture at the Regina Elena Cancer Institute in Rome, Italy, and in 2008, the Harvey Society Lecture at the Rockefeller University in New York, the Marguerite Vogt Lecture at the Salk Institute in La Jolla, CA, the Berta V. Scharer Lecture at the Albert Einstein College of Medicine in New York, the Henry Lemon Memorial Lecture at the University of Nebraska in Omaha, and the Servier-Curie Lecture at the Institut Curie in Paris, France. As well as serving on a large number of committees and advisory boards in many countries, she has published over 300 papers and hold five patents for her work, with another 10 patents pending.

Dr. Bissell heads a large group at LBNL, with over 20 research scientists, postdoctoral fellows, graduate and undergraduate students, and research associates. Her research focuses on the role of the microenvironment and tissue context, particularly the extracellular matrix (ECM), in regulation of tissue-specific functions with special emphasis on breast cancer. Her extensive studies have shown that the context influences cellular behavior, that destroying the ECM with metalloproteinases can produce tumors, and that breast cancer cells can be reverted to nonmalignant cells by correcting sig-

nalizing through the ECM and other signaling pathways that cross-talk with the ECM.

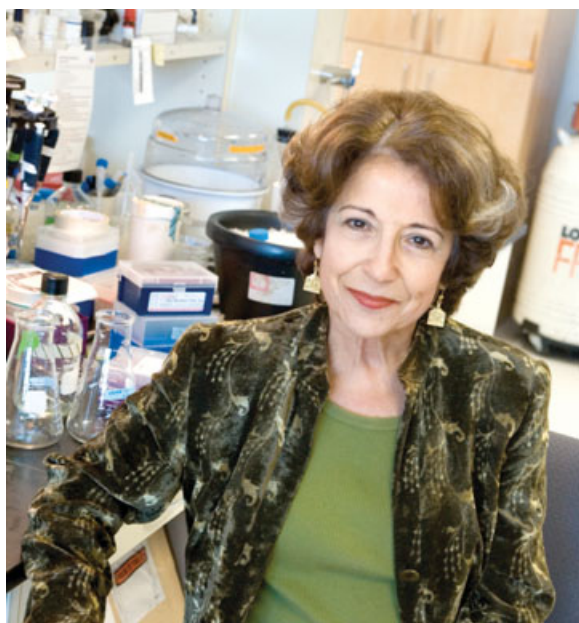
Dr. Bissell has recently been recognized for her lifetime contribution to science by the creation of “The Mina J. Bissell Award” by the University of Porto, Portugal. The award is given every 2 years to a scientist who, like Dr. Bissell, has transformed our perception of a scientific area. The first award was presented to Dr. Bissell for her pioneering contributions to the importance of the role of the microenvironment and context in organ-specific functions and the development of cancer.

### Having a Scientific Career and a Family, Without Guilt

Dr. Bissell grew up in Iran in a well-educated family, and graduated from high school as the top student in the country. With the scholarship she was awarded, she first attended Bryn Mawr College, then transferred as a junior to Harvard/Radcliffe and got married. “In the beginning, I debated between studying English literature and chemistry. I loved literature, but I eventually chose chemistry, and I’m so glad I did.” After obtaining her chemistry degree, she entered the Harvard Graduate School, and from the beginning, she was faced with some unique challenges. “I was one of a handful of women enrolled in the Ph.D. program at that time, and that year’s class at Harvard Medical School had 200 men and only three women” explains Dr. Bissell. Then, during her 1st year of graduate school, she became pregnant and had a child.

“For me, there was never a question if I could have children and also work, because that wasn’t a contradiction in my upbringing. I think this is a very cultural thing. When I grew up in Tehran (capital of Iran), my parents always insisted we must have a career. And it would never enter their minds or mine that I would quit if I had children. Most of my aunts had professional careers; but my mother didn’t, and I think she was always somewhat unhappy because of that.” But this attitude was not widespread 40 years ago in the U.S. “In those days in the U.S., many people thought that staying home with the children was the only choice. But I had a very different background than many of the American women here at that time; this really shows you the importance of one’s environment. It is a little different now, but I still find that of all my fellows and students from all over the world, with a few exceptions, it is mainly the Americans that seem to feel absolutely guilt ridden about working while they have children.”

“I had my daughter during my 1st year of graduate school, and my son 8 years later as a postdoctoral fellow. It was difficult to study, work, and take care of the children at



"There are a lot of exciting opportunities today."

**Figure 1.** Mina Bissell, Ph.D., Distinguished Scientist, Lawrence Berkeley National Laboratory, California.

the same time, because I didn't have any family nearby, and we were living on student salaries. But it is of course best to have an understanding and helpful spouse. Also I hadn't realized that it would not be easy to find good care for my daughter while I studied. At the same time, my husband was an intern and often had to work all weekend, so I was often on my own. So I couldn't very often work late at nights in the lab and had to work really hard during the day. Therefore, I was exhausted all the time! But I was really lucky because I found a wonderful woman with children of her own in Boston, and the family became like family to my daughter and to us. I knew that if I didn't have my own career, I would become very depressed as I had seen in so many middle-aged women."

"Of course there were times when it was also difficult for my children. When there were events at their school during the day, I could very rarely attend. That did make me feel bad, but not guilty; there is a big difference. I would buy the cookies rather than make them! One thing I did do that made things a little easier was that I chose a subject matter for my thesis that wasn't very popular. In fact, I was the only one in the lab working in that area, so it wasn't as competitive and I could just work at my own pace. And I still finished in 6 years, even though the median length of a Ph.D. at that time at Harvard was 7 years. If I didn't have a child, then I may have chosen a different subject, but I did like the fact that my field at that time was new and different, and being alone made me a lot more independent."

#### **"...All of the Conflicts and the Difficulties That One Goes Through Somehow at the End Pay Off"**

"Being a woman, once I finished my Ph.D., there was another thing that caused difficulties; I wasn't taken seriously as a scientist. For example, when I interviewed for my first job at LBNL, I was 3 months pregnant, but it did not show and I didn't see any reason to announce it. Then, when I showed up to start the job 4 months later, and was obviously pregnant at 7 months, I was fired on the spot! I was told that pregnant

women didn't belong. Luckily, another older associate convinced the Director to keep me on, and I would work with him. I have had the good fortune of having some wonderful male and female colleagues, but there were still people around who wouldn't even talk to me. Not to mention that at that time I was already studying the role of the microenvironment and ECM, and very few people were really talking about this field; it all seemed messy and unimportant. That was a very, very difficult time. But I got through it. I tried to think of it as their problem. And I think it was my background that allowed me to persist, making me even more determined to do well and not give up. It now has come to pass and it is better to be recognized while alive!"

"If there is a regret, it's that in those days we didn't have any psychological understanding of child development. The only book we had was Dr. Spock. It was especially hard on my daughter who was a very sensitive, intelligent, and stubborn child. Parents today have much more knowledge of their kids' needs. Nevertheless, both of my children have turned out very well; they both are well educated and have very successful careers, and we are very proud of them. I would say that all of the conflicts and all the difficulties that one goes through somehow at the end pay off. My daughter has educated me to be a lot more understanding of children's problems and needs, and as a result, I think I am a much better person. It also has helped me to be more flexible in interacting with my colleagues, and when I was director of so many people."

"Looking back now, I wouldn't have done it differently. I wouldn't have waited any longer to have children. I always tell my students and postdoctoral fellows (eight of whom are having children right now!) that there is never a good time to have a child and never a bad time. So if you really want to have children, you should just have them. No matter when you have them there will be problems—just different problems. You can't control and plan everything. I do know many women who have waited until they get their tenure to have children, and while happy, they often don't have as much energy at that age, although they are more financially secure. On the other hand, since I had my children at a younger age, we are now having a wonderful time enjoying our four grandchildren!"

#### **"There Is a Lot of Dignity in Work"**

While things have improved for women in science, Dr. Bissell feels that there are still large issues to overcome. "An interesting Swedish study in 1997 published in *Nature* [1997;387:341] examined whether there was a gender bias in the awarding of first grants. Using a point scoring system to measure scientific achievements, a rigorous statistical analysis revealed that for a female scientist to be awarded the same 'competence' score as her male counterpart, she had to be 2.5 times more productive than he. That is an incredible and unrealistic burden and may explain why women drop out so often in Sweden. Thus there is even more reason for women to support each other. Women are often overly critical of other women in research (this is what my male colleagues tell me). I think that they are trying to appear strong and tough and want to be 'one of the boys.' It is fine to do that if they want, but why not also help the other women as well?"

Dr. Bissell herself has helped to improve the environment for women in science by serving as Chair of Women in Cell Biology, a committee of the American Society for Cell Biology devoted to providing opportunities and information to aid women in developing their careers in cell biology. She recognizes the importance of good role models and mentoring, and enjoys advising and encouraging her many trainees and often

will go to great length to accept the invitations of students and postdoctoral fellows (males and females alike) to lecture and give advice. And she believes that young women in the field have every reason to be enthusiastic and energized. “There are a lot of exciting opportunities today, and, as I

always tell my young students and fellows: remember that there is a lot of dignity in work.”

Majlinda Lako, Ph.D.  
Susan Daher, Ph.D.

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