

## Falcon Genomics Inc. is offering hope in the area of Breast Cancer, Developing their Cancer BioChip where a Patient's Biopsy could be used to determine the Abnormally Expressed Genes in that Tumor, allowing for more Targeted Personalized Therapies

### Healthcare Genomics

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**Rula Abbud-Antaki**  
President

#### BIO:

Dr. Rula Abbud-Antaki received her Ph.D. in Physiology from the University of Pittsburgh and did a Postdoctoral fellowship at Case Western Reserve University. She subsequently held a Faculty position in the Division of Endocrinology at the University of California in Los Angeles and Cedars Sinai Medical Center. She then moved to Pittsburgh where she founded Falcon Genomics, Inc. Her research interests focus on the etiology, diagnosis, and treatment of cancer using cutting-edge molecular and

genomic tools. Throughout her career, she has published in several high-impact peer-reviewed journals and was an invited speaker at several conferences. She has obtained several awards and was a winner of Phases 1 and 2 of the EnterPrize Business Plan Competition from the Pittsburgh Technology Council. She is the inventor of several issued and pending patents related to the Cancer BioChip System, which is the basic technical platform of Falcon Genomics, Inc.

#### About Falcon Genomics, Inc.

The goal of Falcon Genomics, Inc. is to provide cutting edge technologies for accurate diagnosis of cancer and personalized formulation of therapeutic strategies.

**Interview conducted by:**  
**Lynn Fosse, Senior Editor**  
**CEOCFO Magazine**

**CEOCFO:** Dr. Abbud-Antaki, what is the vision at Falcon?

**Dr. Abbud-Antaki:** The vision of Falcon is to translate genomic breakthroughs into targeted and successful therapy. Since the sequencing of the human genome back in early 2000, we have not seen much translation into the clinic. We think we have the technology that would allow us to do just that, use the genomic information and achieve clinical success.

**CEOCFO:** What have you figured out that others have not?

**Dr. Abbud-Antaki:** We have validated our technology platform for breast cancer, so our discoveries relate primarily to breast cancer. We have found that with our Cancer Bio-

Chip System, we can take a patient's biopsy and determine the abnormally expressed genes in that tumor and out of the hundreds of abnormally expressed genes, then identify which ones need to be targeted for therapy. We are finding that different patients respond differently. Our Cancer BioChip can be used as an in-vitro surrogate for testing different therapies on the tumor. Rather than take a patient and start giving them different drugs to find out which drug would work best, we can first select proper therapy by testing tumor cells on the Cancer BioChip. The reason we are different from everybody else is because our test grows the cancer cells in 3-D, as they would grow in the body. All other cancer drug screening platforms grow cells on flat surfaces. The translatability of the results that we get on our Cancer Biochip System to the in vivo milieu is much higher than other tests.

**CEOCFO:** Is it the 3-D, which Falcon has developed?

**Dr. Abbud-Antaki:** No, it is the ability to determine the effect of multitudes of silencing RNA on 3D cell growth. There are many advances that have happened that are very powerful and allow us to translate genomic information into clinical success. The most important one is silencing RNA technology. With silencing RNA, we can target every gene in the human genome based on sequence. The reason why we need to target those genes is because if a particular gene is responsible for abnormal growth of the tumor cells, we need to suppress that gene. It used to be that there were only a few genes that could be drugged and inhibited. Now with si-

lencing RNA, we can develop a drug for every gene in the human genome. We could take the tumor cells, identify which are the genes that are abnormally expressed, and then test multitudes of siRNAs that target these genes on our cancer biochip platform and determine which siRNAs could suppress growth of the tumor in 3-D.

**CEOCFO:** Where are you in the development and commercialization process?

**Dr. Abbud-Antaki:** We have validated a first generation Cancer Bio-Chip System that was designed to target forty different genes that are thought to be involved in breast cancer. We have recently disclosed these validation results in the PLOS ONE paper that was published last week and in a Hormones and Cancer article published back in June 2012. We showed that for different types of breast cancer, we could see different siRNAs being effective at suppressing tumor growth. What is most exciting is that we *also* found that there are some genes like beta actin, which everybody uses as controls in their cells that are growing on flat surfaces, significantly suppresses tumor growth when targeted by siRNA in 3-D. These results further emphasize the need for doing these tests in the 3-D setup.

**CEOCFO:** Why the decision to start with breast cancer?

**Dr. Abbud-Antaki:** There are many women that are diagnosed with breast cancer every year. It is the most common type of cancer in women. There is a great effort for curing breast cancer, many genomic studies have been done on breast cancer, and none of them have been able to come up with a complete cure for this disease. There are still too many women dying of breast cancer today.

Our technology allows us to take the genomic information a step further and make the possibility of personalizing therapy reachable for women. Women who are not responsive to current therapies could benefit from our cancer biochip platform. They could tell whether they would respond to some of the drugs that are in development, and other drugs that are being tested for other types of cancer. This is especially helpful for women who have so-called triple negative types of breast cancer, or are identified to have high likelihood of recurrence on some of the other genomic tests. We would like to get our cancer biochip to provide this hope for women with currently incurable breast cancer.

**We think we have a unique technology that can allow for the cure of breast cancer. Today it is breast cancer, but in the future, it could be other types of cancer. We think it is important to test the patients' tumors on the cancer biochip before deciding on giving the patient a particular drug. It will allow us to minimize the discomfort of the patient and bring about the targeted therapies, which will result in less side effects. I think that is the future of cancer therapy, and *that* is where we want Falcon Genomics to be. - Rula Abbud-Antaki**

**CEOCFO:** What are the next steps for you?

**Dr. Abbud-Antaki:** We have several papers still in preparation showing further validation of this technology and they should be coming out soon. That will help us to provide this test as a service for breast cancer patients. Our company is currently seeking funding to get to the next step and reach the milestones that would allow us to take this technology to the clinic.

**CEOCFO:** Does Falcon Genomics have the funding you need to get through the next steps?

**Dr. Abbud-Antaki:** We are seeking funding right now. As far as funding,

our company has taken a bootstrapped approach and we have received government funding and technology development funding. We received a Phase 1 SBIR grant from NIH. We are looking to get a Phase II grant.

**CEOCFO:** Has the medical community started to pay attention or is it too early?

**Dr. Abbud-Antaki:** I think the *medical* community has started to pay attention, but the community that is *not* paying attention is the pharmaceutical companies. They have done a great amount of work using cells growing on flat surfaces, which resulted in many targets that did not succeed in the clinic. I think the medical community is more aware of the need for testing in 3-D and in a setting that would be highly clinically translatable.

**CEOCFO:** How do you garner the attention you need?

**Dr. Abbud-Antaki:** We get attention by talking to you and publishing our data as well as speaking at meetings and sending out marketing brochures. We talk to anybody who wants to listen.

**CEOCFO:** Why should the business and investment community pay attention to Falcon Genomics?

**Dr. Abbud-Antaki:** We think we have a unique technology that can allow for the cure of breast cancer. Today it is breast cancer, but in the future, it could be other types of cancer. We think it is important to test the patients' tumors on the cancer biochip before deciding on giving the patient a particular drug. It will allow us to minimize the discomfort of the patient and bring about the targeted therapies, which will result in less side effects. I think that is the future of cancer therapy, and *that* is where we want Falcon Genomics to be.