



## Victoria Vinader – Fellow University of Bradford



### **Prevention of lymph node metastasis in the treatment of cancer**

#### **Project summary**

*Metastasis, where cancer cells can spread to other sites of the body, is a major obstacle in both cancer treatment and disease mortality. In breast cancer, the metastatic process includes an initial migration of tumour cells from the breast tissue to the lymph nodes followed by their dissemination to other organs through the lymphatic system.*

*Novel drugs that can prevent the spread of tumours through the lymphatic system would have a significant positive impact of patient treatment and mortality. The migration of tumour cells to lymph nodes is controlled by chemokine proteins CCL19 and CCL21, which are released in the lymph nodes surrounding the breast tissue. These chemokines selectively bind to receptor CCR7 on the tumour cells in the breast tissue. This binding initiates the process that leads to the migration of the tumour cell from the breast tissue to the lymphatic system; and the subsequent dissemination to other organs where they cause secondary cancers to grow.*

*Victoria and her team are developing novel drugs that inhibit the binding of CCL19 and CCL21 to CCR7 and aim to show that they can control metastatic spread of breast cancer to the lymphatic system. If successful, this project has great potential clinically and commercially.*

#### **What did you get out of the YEF programme?**

A mixture of things... some of the training was very interesting; parts of it taught me things I needed to know such as Jo Haigh's financial material<sup>1</sup>. I would say that working with my mentor, Damien Bové, was probably the best part of the programme.

#### **How did you benefit? Did your thinking change in any way? Has it changed you in any way?**

Parts of the training helped me to better understand areas of business that I had previously got others to do for me, having worked in industry. It was good to grasp a better understanding

<sup>1</sup> See Chapter 8, 9 & 10

and learn how these things work, such as budgets and business planning, and to be able to work out the figures for myself. There were topics I hadn't really thought about and weren't even on my radar, such as raising finance via venture funds<sup>2</sup> – these sources of funding hadn't occurred to me before the programme.

#### **What milestones did you manage to reach due to the YEF programme? Could you have reached the same milestones without it?**

Via YEF we received funds that we used in part to pay for some software modelling performed at the University of Leeds. In general the funding sped up the development process and brought discipline to the project. Best of all, the funding helped us to identify several lead compounds that so far look very promising.

#### **Tell me about working with your mentor...**

Damien is great at business planning and finance and helped me quite a bit as I am not as strong in this area. He is very good at knowing what angle to take when writing a business plan and knows what the investors want to hear, what we need to emphasize. He is very business-oriented and gave me invaluable insights to help me get ready for the mock Dragon's Den. I am very lucky that we are still in touch and working together (I am doing some medicinal chemistry work for a client of his) and we often talk on the phone.

#### **Overall, what worked about the YEF programme? What didn't? What would you advise YTKO to change, if anything?**

The training sessions I enjoyed the most were those Simon Ward led, especially the case study of how he took IP from a University and successfully commercialized it by setting up a company<sup>3</sup>.

<sup>2</sup> See Chapter 15.

<sup>3</sup> See Chapter 2.



Victoria showcasing her project at the 'Seeding Success' event in November 2008.

I think it is a good idea that we have to report our progress to the programme management team and are therefore accountable. Some of the training for me was trivial, too general, but that is because I had prior experience working in industry and I was familiar with IP issues and managing projects.

The only thing I would change is the IP session – I believe it would be far more valuable to offer the IP training in smaller groups that are in similar sectors. For instance, the pharma Fellows could train in one group and the medical devices Fellows could train in a separate group as the issues and time-scales are so different in these sectors.

Presentations skills could also benefit from being revised. Perhaps it could be re-tailored to emphasize presentations geared towards investors, which can be very different from the scientific presentations we are familiar with.

#### What message would you like me to convey back to YTKO?

It would be nice if there were some kind of follow-on programme for successful graduates of the programme, for continued support from YTKO, possibly in the form of additional specialized training, access to the mentor (not everyone is as lucky as I am and has been able to stay in touch), with additional funding to move the project forward.

**University of Bradford**  
**YEF 26**  
**Dr Victoria Vinader**

### Prevention of lymph node metastasis in treatment

**BACKGROUND**  
Metastatic spread of cancer is a major factor in cancer mortality. Chemokines control the migration of cells through binding to specific cell-surface receptors that are over-expressed in many cancer cells. To date, the majority of research into the therapeutic role of chemokines in cancer has focused on CXC chemokine receptor-4 (CXCR4) and its natural ligand CXCL12.

**TECHNICAL PROGRESS**  
Using a methodology that involves computational chemistry, we have identified one completely novel series of compounds that can antagonise CXCR4 with representative activities of ~1 $\mu$ M.

**COMMERCIALISATION**  
A business plan has been prepared and it is expected that the CXCR4 and CCR7 compounds will form pipeline products for a spin-out company together with other anti-metastatic drugs being developed with colleagues at the University of Bradford.

Following further characterization of these compounds in terms of capability to prevent cell migration, a patent filing is envisioned for the end of 2010.

Characterization of the CCR7 compounds is continuing, following the identification of a novel series of compounds.

We aim to investigate the role of other chemokines receptors in cancer, focusing initially on CCR7 and explore whether chemokines work synergistically to promote metastasis. Although some CXCR4 receptor antagonists exist, they lack the potential as drug substances. CCR7 antagonist have never been described in the scientific and patent literature.

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### Damien Bové – Mentor for Victoria Vinader

*Damien has worked in the pharmaceutical industry for over 15 years, first as a pharmaceutical technician and then as an academic research manager at SmithKline Beecham before completing his university education. Damien graduated from the University of Bradford School of Pharmacy in 2000 and has a Master's degree in the Frontiers of Medical Science. He has since pursued his career in the development of novel drug / biological products.*



*Damien started his post-university career working at Covance, a global contract research organization. He worked in the global consultancy division in the area of emergent product services, specializing in defining markets and regulatory / development strategies for novel pharmaceutical and biotechnology products. In 2004 Damien became an independent consultant in this area, specializing in working with virtual and small drug development companies.*

*His work has seen him frequently present projects to the MHRA, EMEA and FDA, and prepare development programmes aimed at attracting investors. Damien has enjoyed significant success in helping companies to raise finance, with a 100% success record for the companies he advises going on to raise the necessary finance to move their projects forward.*

#### **Why did you choose to mentor?**

I chose to mentor because I have a lot of experience that I'd like to share with start-ups in the pharmaceutical drug delivery and drug discovery sector. Mentoring is a great way to do this.

#### **What format did the mentoring take?**

The YEF programme had quarterly meetings with the fellows, where we would agree upon a set of goals, measures and outputs and then in between it would be a matter of supporting these activities, catching up over the phone and email and having additional meetings as and when necessary.

#### **Did you have a plan and stick to it? Did you have to adapt or change your communication style to get results?**

Each mentee is different and one has to adapt one's style to suit. Victoria produced results very quickly by being focused on a plan and sticking to it.

#### **Did you enjoy it or was it hard work, or a bit of both? Was it time or energy consuming or energizing?**

There is a lot to do, it is hard work, but at the same time it was very enjoyable and energizing.

#### **Was your mentee receptive? Coachable?**

Victoria was open to suggestion and very much involved in the detail of the planning as well as carrying it out. She worked with me to produce a business plan which is currently being used to raise additional finance.

#### **What do you feel you added to the project?**

I believe I added good solid commercial questions such as where is this going, what are the next stages, what are the market opportunities, who will be interested in it, how much funding will be needed, when will it be needed... I also put Victoria in touch with experts that would help her project to progress.

#### **What did you gain/learn from it?**

I gained a lot of insight in the day-to-day science, it expanded by expertise and I was quite amazed at how quickly results could be achieved by focusing on a niche within the industry, by having a plan and sticking to it, within that niche.

#### **How did you measure whether you were making a difference?**

Mainly by feedback and 'gut-feel' – I would ask the mentee if I was delivering what she wanted, I would emphasize that I was working for her and that she needed to tell me if she needed something.

#### **Are you still involved with the project? If yes, in what way?**

We still talk about once a month on the phone. Also, some of my clients are contracting Victoria's group to do some contract research for them.

#### **Would you consider mentoring again?**

Yes – I am currently mentoring four fellows.

#### **Why do you think you received the Mentor of the Year award?**

I am not too sure as I have spoken with quite a few of the mentors and they are all great, putting in a lot of their time and resources into the project's success. I did my best to help the mentees achieve their goals, as I'm sure the others did.

#### **What haven't I asked that you would like to add?**

There is quite a bit of mental involvement needed to mentor a fellow, I would therefore recommend limiting the number of mentees at any one time. To do the job well requires a large mental commitment as well as time and resources. I think there is an upper limit to the number of people a mentor can work with, in addition to carrying out their day job.