Monash – towards $1 billion of commercialisation income
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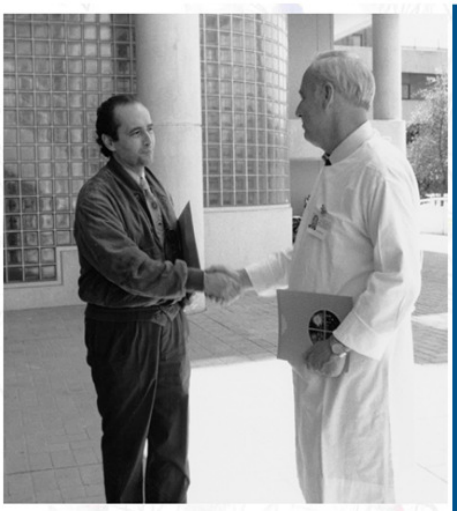
April 2010

Early in 1997, as CEO of a funds management company, I was invited by one of my clients, the Walter and Eliza Hall Institute, to a special birthday dinner for Professor Donald Metcalf. As an opera buff, I was mightily impressed that at the dinner none other than the famous tenor, Jose Carreras, sang Happy Birthday to Don. **[SLIDE 2]** Up until that point I knew little about Metcalf's work or for that matter biotechnology but that dinner acted as a turning point in starting me on an ongoing quest to transform Australia's scientific brilliance into economic wealth.

Source: http://www.austradehealth.gov.au/ArticleDocuments/1892/Presentation-Walter-and-Eliza-Hall-Institute.pdf.aspx



Señor Jose Carreras
with Professor Don Metcalf

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I was appalled that Metcalf had invented something, namely Granulocyte Colony Stimulating factor that was earning a US drug company billions of dollars and from which Metcalf, WEHI and Australia got virtually no economic benefit. I was fascinated though that such a discovery could generate billions of dollars. In 1998 I attempted to get started an investment fund to take advantage of the output of Australia's medical research, however, I found at that time too many structural impediments, so my interest

in this challenge got put to the back of my mind until I retired from my fulltime executive career in 2005.

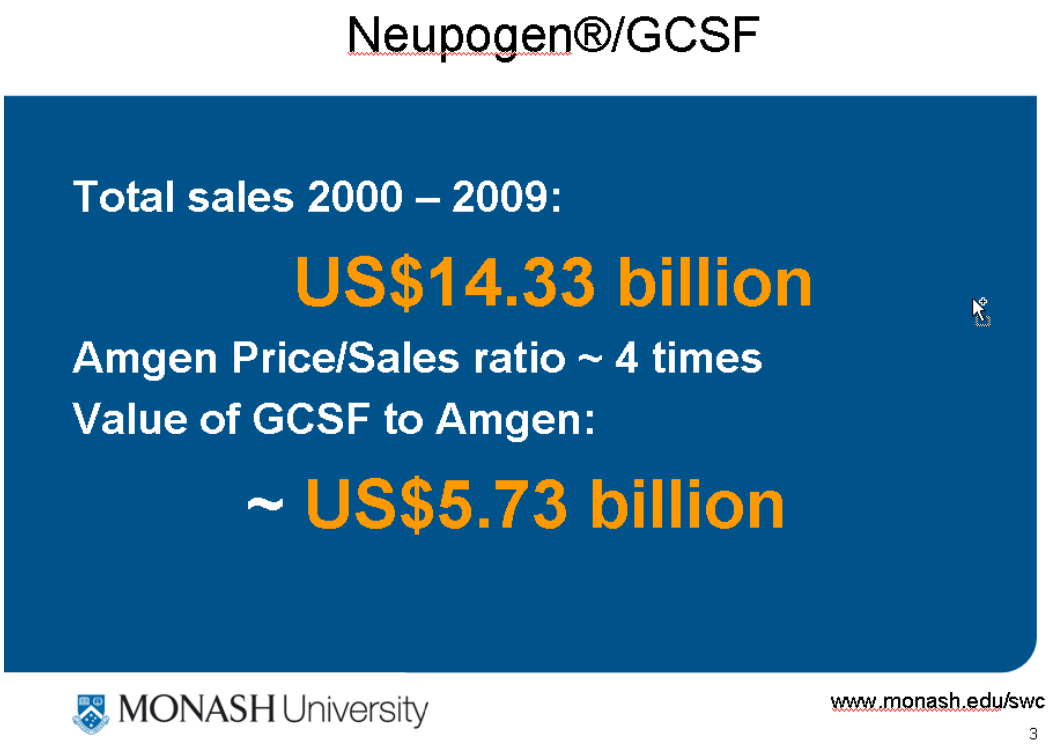
The idea of establishing a university based centre to tackle the challenge of generating wealth from science had been crystallising since my Metcalf revelation in the late nineties. Little did I comprehend the complexities of realising my goal of penetrating what, to a business person, seemed to be the fortress like walls of a university to implement my plan. But, with help and support from a large number of people, The Monash Asia Pacific Centre for Science and Wealth Creation opened in 2006. In acknowledging the support and vision of senior officers of the University that made the Centre happen, I would like to particularly note the roles of our current Vice Chancellor, Ed Byrne, who was then Dean of Medicine, our previous Vice Chancellor, Richard Larkins, our current Senior Deputy Vice Chancellor, Edwina Cornish and the now CEO of the NHMRC, Warwick Anderson, who was then Head of the School of Biological Sciences.

The Centre got off to a good start in playing a role in better positioning Australia to generate more wealth from science, mainly through the Master of Business (Science and Technology) program that it runs with BusEco and the Law Faculty. By adding business and commercialisation skills to the bright and motivated science and technology graduates that enter this program we hope that we are helping to produce a vital element in the processes that will turn Australia's outstanding science to wealth, not to mention hopefully having a similar impact on the economies of the many countries to which some of our students have returned after graduating.

There is a long way to go, however, in achieving wealth creation from science that matches our scientific achievement. I could give a multi-hour talk on that subject and, as I only have 15 minutes, I'm going to focus on how I think Monash could create more wealth from its science and technology research.

I've entitled this talk "Monash – towards $1 billion of commercialisation income", so first I had better give some justification for a goal of $1 billion. Again I don't have time to do this justice so let me just throw out a few pointers that at least form a basis for thinking that $1 billion might be achievable. I earlier mentioned Don Metcalf's discovery of GCSF. Neupogen, the

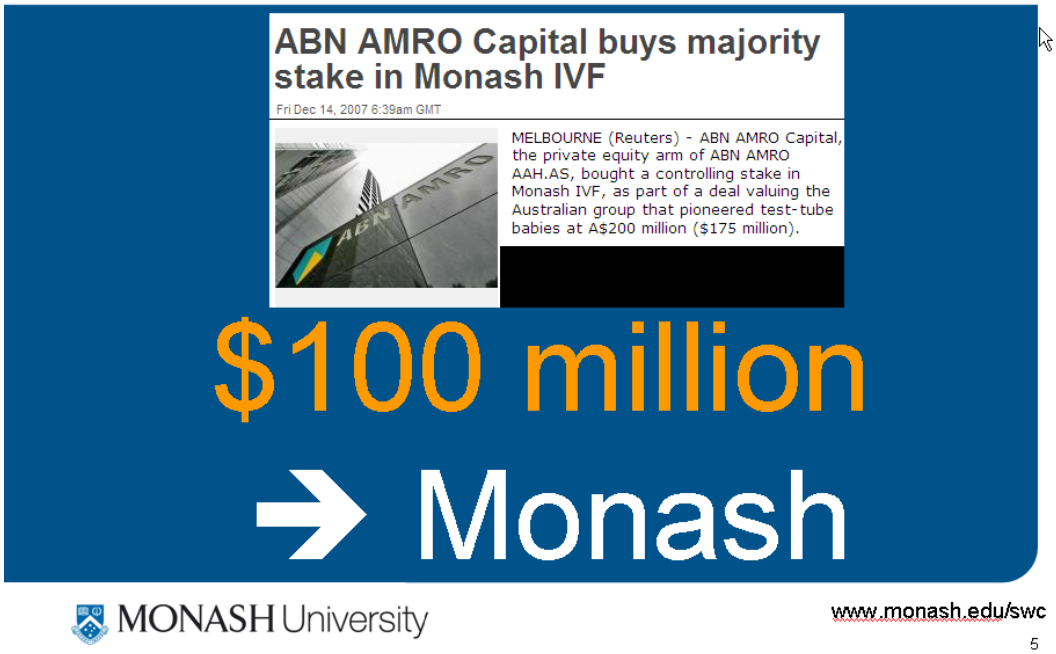
Amgen trade name for GCSF, has made the company average sales of $1.4 billion per annum over the last ten years. **[SLIDE 3]** Using Amgen's price to sales ratio of about 4 times, this means that Don's discovery contributes close to US$6 billion to Amgen's market capitalisation. As mentioned, Don, WEHI and Australia have hardly benefited economically from this discovery, largely as a result of a lack of sophistication in commercialisation back when the discovery was made.



However, even when a good licensing deal is pulled off for a blockbuster drug discovery, it can take a long time to make $1 billion through royalties alone. For example, in 2008 Merck had sales of about US$1.4 billion of the Gardasil vaccine discovered by Professor Ian Frazer at the University of Queensland. **[SLIDE 4]** In 2008 the UQ received royalties of about $45 million from Gardasil; nice to have but a lot more needed to get to $1 billion of commercialisation income.

A better example of how to get to a billion comes from much closer to home with the sale by Monash University of its share of Monash IVF for over $100 million; **[SLIDE 5]** only ten of those required for the billion.

Sale of Monash IVF

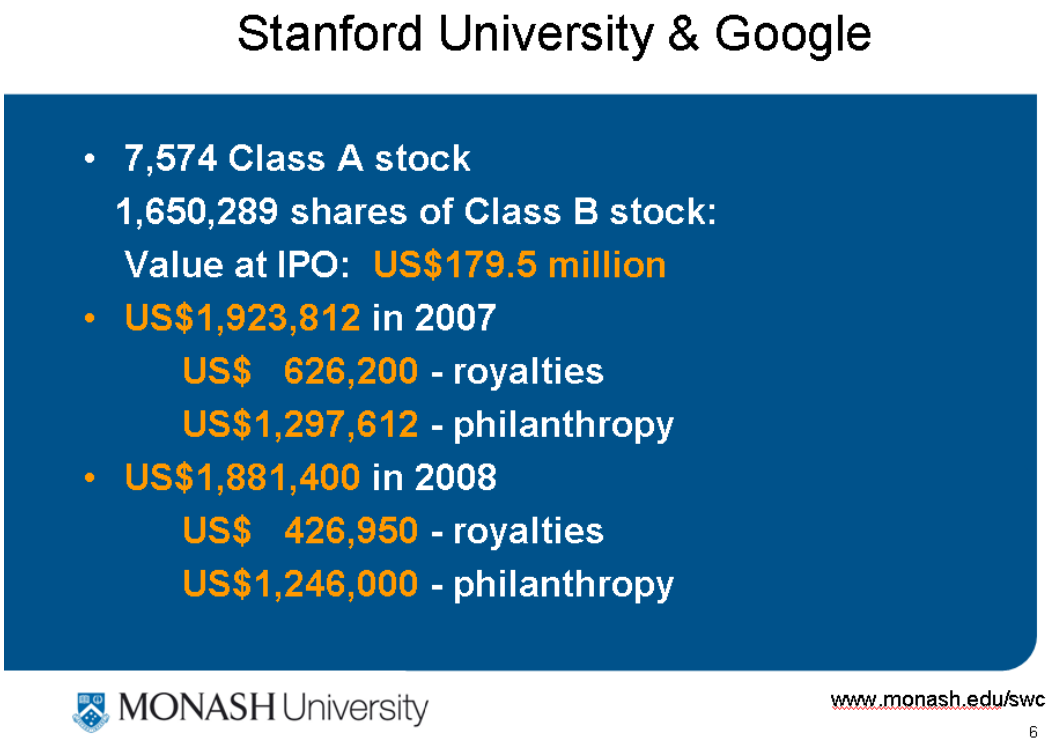


Has a university got to a billion of commercialisation income? Yes and let me read from the Wall Street Journal, 2004, and a couple of US Securities and Exchange Commission filings to prove it.

[SLIDE 6a] "After last week's initial public offering, Stanford is left with 7,574 shares of Class A Google stock and 1,650,289 shares of Class B stock, according to Securities and Exchange Commission filings. Those holdings are valued at $179.5 million."

[SLIDE 6b] "In 2007, Google paid approximately $1,923,812 to Stanford University. Approximately $626,200 of these payments related to the license by Stanford of patents, including the PageRank patent, to Google. Approximately $1,297,612 of the total amount of payments to Stanford represented donations for scholarships and other philanthropic endeavors."

[SLIDE 6c] "In 2008, Google paid approximately $1,881,400 to Stanford University. Approximately $426,950 of these payments related to the license by Stanford of patents, including the PageRank patent, to Google. Approximately $1,246,000 of the total payment to Stanford represented donations for scholarships and other philanthropic endeavors."



Note that the really big payments didn't come from shares or licenses but from philanthropic donations. I'll return to this in a minute.

Just because no Australian university has reached the goal and few international ones have, doesn't mean that Monash shouldn't strive for it. Let's look at the goal another way: In 2008 Monash was second among the Group of Eight universities in Research and Experimental Development Expenditure with $636 million. **[SLIDE 7a]** Now if that were my money, and indeed, I guess most of it is tax payers' money, what level of return would I want on it? Well if it were early stage venture capital investment, a rule of thumb is that you look for a return of 5 times your investment, which would give $3.18 billion **[SLIDE 7b]** a number that to me seems a very reasonable target. Now all of that can't be expected to flow back to Monash as cash, in that some of the tax payer funding, for example in road accident research, is expected to pay off by way of savings to the economy, from, for example, reduced road trauma, and some is invested for outcomes that we still don't monetise, such as improving civil society. However, after that, I think it's reasonable to aim for $1billion as a cash return to Monash in the form of licenses, contracting assignments, share allocations and philanthropic donations from billionaire academic inventors.

Monash R&D

So what do we need to do to achieve this? **[SLIDE 8.0]**

After more than a decade of thinking about this question and the last five years being heavily engaged with the challenge, including being an insider at Monash, I have five key suggestions for achieving the goal, which I only have time to briefly summarise. Here they are:

1) Do research that makes money **[SLIDE 8.1]**

Now this may sound like heresy to many academics to think of setting out to make money when embarking on a program of research; however I believe that this is my most powerful suggestion for generating wealth from science and technology and it need not mean enormous changes to the way that research is undertaken.

First the rationale for the suggestion. Apart from the obvious of generating wealth, in many fields of research, the effectiveness and impact of research can be measured by how much money is generated. Drug discovery is an obvious example. Setting out to do research that makes money is also a way of ensuring that valuable research resources are not being wasted. And to do this

does not require a great deal of change but rather a small part of a research program being devoted to matters of commerce.

Let me give you one of my favourite examples. When a student embarks on a PhD program, they typically undertake a literature search related to their field of research. Every science and technology PhD student I meet I ask the following question: "Have you undertaken a patent search related to your field of research." To date, the only answers of "yes" come from students also enrolled in commercialisation programs.

What a waste to set a student off on PhD research that might me littered with existing patents when a bit of work on the patent landscape could have given them an equally as exciting and challenging program that could lead to new intellectual property and possibly wealth generation.

There are many other examples and, if I had my way, all research programs would be tweaked to maximise the chance of wealth creation. I am sure that there would be many researchers who would love to be shown how some small modifications to the way they work might make them a millionaire, even if it is only so that they don't have to spend time on any more ARC or NHMRC grant applications.

Closely related to doing research that makes money is my next suggestion:

2) Plan to make money **[SLIDE 8.2]**

Throughout the course of a research program, there should be some appropriate level of commercial planning commensurate with the commercial potential of the research.

One of last year's Master of Business (Science & Technology) commercialisation projects that was particularly interesting in this regard was for the PhD research of Brendan Wilding, entitled "Therapies for Reducing Body Myopathy". Brendan was just starting on his research program and commercial returns, if any, would be many years in the future, however, this commercialisation plan helped define the areas that might be most fruitful and the steps needed to ensure that the fruits of his research would be harvested.

Without a plan, it takes a lot of luck for research to generate large rewards, with a considerable risk that some step along the way will be fatally flawed leading to a sub-optimal commercial result.

Of course resources need to be in place to help create these plans, as rarely will the researcher have the necessary skills and knowledge to do so by themselves.

One important area of planning relates to my next suggestion:

3) Take patenting seriously **[SLIDE 8.3]**

In most areas of commerce wealth is created by owning something that the market perceives as valuable. The value created as the result of most academic research comes in the form of intellectual property, which, if it is to be highly valued by the market, must be properly protected.

If an invention or portfolio of inventions is to make a billion dollars, it is likely that its IP will be contested and it is must be strongly protected. In most cases we don't know what the blockbuster research is going to be so we need to set out with a view that anything that we are trying to commercialise is going to be a blockbuster.

Early in my time at Monash I picked up two pieces of discarded Monash IP. Both had poorly drafted patent applications and required a lot of time and money to properly protect. Four years on, I still think that they have commercial potential and with one, we just a few weeks ago had a fairly significant victory that involved having two patent attorneys visit in person the examiner and his supervisor at the US Patent and Trademark Office in Washington DC to argue a point. That's an example of what I mean when I say take patenting seriously.

Monash being supportive of my taking over this IP is an example of my next suggestion.

4) Find entrepreneurial support **[SLIDE 8.4]**

Entrepreneurs are people who create wealth. They are the people who will create wealth from science. Without entrepreneurial drive

it is unlikely that Monash can reach the goal of $1 billion of commercialisation income.

It is rare for research academics to also be entrepreneurs. However, there are exceptions, including Professor Alan Trounson, who drove much of the early value creation of Monash IVF, which we saw generated over $100 million of income for Monash. Academic entrepreneurs are to be encouraged; a path that from my observations, including of Alan Trounson, Monash finds difficult. It is a subject that I think is worthy of deliberation by the university's senior management.

In any case, there is a big mismatch between the amount of science undertaken at Monash and the number of academic entrepreneurs. So where do we find the remainder? Well, Monash needs to open up to entrepreneurs to make it easier for them to get inside and help drive the creation of wealth from Monash research. It took me a year to crack the doors open, becoming a Professorial Fellow albeit with a big teaching load. If we can find a way to make Monash more open to entrepreneurs it will give us a massive head start in reaching the billion dollar goal.

Finally, what about the researchers? The people who are at the heart of all that I have mentioned. Well my final suggestion is to

5) Encourage researchers to get rich **[SLIDE 8.5]**

As we saw from the Google example, one of the best ways for a university to generate a billion dollars of commercialisation income is to create some billionaire researchers who then give the odd billion to the university.

I think more can and should be done to encourage Monash researchers to strive to make money from their research both for the university and for themselves. In particular, I believe that the university should lean towards generosity to researchers in the split of revenue from commercialisation of their research. Even though the university contributes resources to the research, without the intellect and dedication of the researchers there will be nothing to commercialise.

When I took over from Monash the IP associated with the two projects that I mentioned earlier I struck deals with the inventors

that were considerably more generous than the revenue sharing arrangements that they had with Monash. I'm not sure if it motivated the scientists but the deals were to me fair based on the relative inputs to the projects. As more capital has had to be put into the projects, the scientists' positions have been diluted but they are still substantial.

So there are my five suggestions for increasing Monash's commercialisation income. Given Monash's already excellent research base and the continuing striving for research excellence, I am convinced that if we can also strive towards implementing these suggestions then the goal of $1 billion of commercialisation income in well within reach.

