



Hello and welcome to the 3rd edition of *bio bits*, an informal Biotech newsletter designed to let you know about some of the new Biotech projects taking place in Australia and around the world.

I'm Inga Thomson and I have recently joined the Department of Business, Economic and Regional Development (DBERD) as the new Biotechnology project officer working with Murray Hird in Industry Development. Prior to this, I completed a PhD in Medical Genetics, back in Scotland.

We hope you enjoy our newsletter and welcome your feedback.

Territory plays host to three Biotechnology forums

The Northern Territory will play host to a series of Biotechnology themed forums from 19 -21 November 2007.

The BioFutures-BioSolutions and Nanotechnology forums will be community based events showcasing Australia's top researchers and their biotechnology solutions to everyday issues.

Drug development: chapter 2

Potential drug compounds, once discovered, purified, characterized, and tested in the lab (in cell and animal studies) must undergo clinical trials before marketing approval can ever be gained. In all, only 1 in 1,000 potential drugs make it this far. These clinical trials take place in a number of clear defined steps.

Phase I trials:

This is the first stage of testing in human subjects and usually involves a small group of healthy volunteers (20-80). These tests determine the initial safety of a potential drug.

Phase II trials:

Having passed phase I trials, potential drugs are

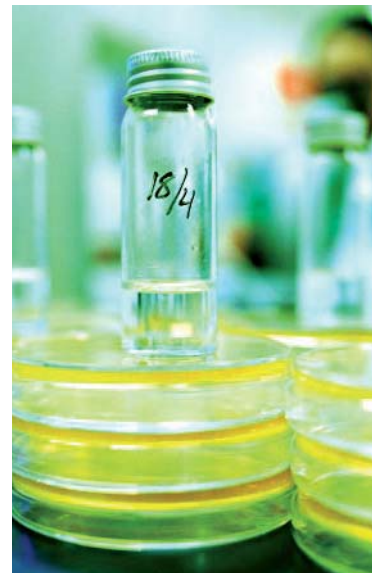
The third forum in the series to be hosted by DBERD on the 20 November 2007, will be a Bio Industry forum to promote and facilitate the growth of the Biotechnology Industry within the Northern Territory.

For further information or to register your attendance at each forum contact Inga on 8999 5331 or visit www.nt.gov.au/business.

assessed on their actual activity on a larger group of volunteers (20-300). New drugs commonly fail at this stage due to poor activity or toxic effects.

Phase III trials:

Randomised controlled trials on even larger patient groups (300-3000) and are the most expensive, time-consuming and difficult trials to run. However if a drug proves satisfactory at this stage, the results of this trial will then be used alongside other information about the drug such as its shelf life, and its formulation to seek approval for marketing.





Biotechnology around Australia

Australia's \$18 billion forest and wood production industry has been given a boost with the discovery of a gene which increases the strength of wood produced in Eucalypt trees. Tree seedlings can be genetically screened for the presence of the gene and only trees containing it selected for further growth.

Stem cells- amazingly unique

For a cell to be termed as a stem cell, it must meet two crucial requirements. These are:

- 1: the ability to undergo cell division indefinitely and remain in an unspecialised form; and
- 2: the ability to develop into any mature cell type.

Most cells within the human body are unable to divide, are highly specialised and unable to change function. By inserting stem cells into a damaged tissue or a tissue with a genetic defect, there is the potential to re-populate the tissue with healthy cells. This concept recently gained new momentum as patients with damaged heart muscle were implanted with stem cells and showed heart muscle recovery six months later.

DNA for dummies: part 2

DNA is made up of four substances: adenine, cytosine, thymine and guanine. These substances are commonly called nucleotides and are joined together by hydrogen bonds to form a double helix. Nucleotide bases within each cell of your body are aligned in a specific code which is unique to you.

Bio jargon: what it all means.....

Transgenic: an organism which has had its DNA altered by the addition of a gene or genes from another species or breed.

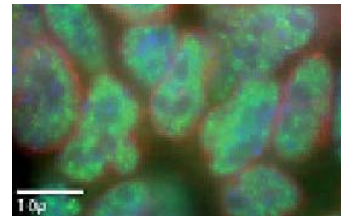
Proteomics: a new and evolving field of science that seeks to specify all the proteins produced by a cell in all types of situations and environments and to understand how they function.

Biotechnology news around the world

Further a field, researchers at the University of Georgia have announced the creation of hens able to produce biopharmaceutical drugs within their egg whites. Chickens are highly efficient at producing proteins and their whites are "a perfect matrix" for the production of such drugs.

Research from the UK suggests women may be pre-disposed to prefer pink colours. One theory as to why this may be is that women associate pink tones with reddish ripe fruit and in days gone by it was women who did most of the fruit gathering.

The amazing ability of stem cells



Hens are now producing biopharmaceutical drugs



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Look out for our next edition of BioBits coming soon!

- DNA for Dummies: the next installment
- More Bio news from around Australia and the world
- Biofuels-an easy guide