



DNA

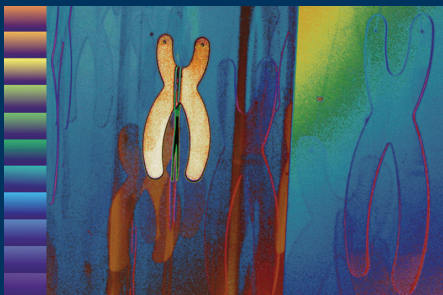


Human Genome Meeting 2006
Helsinki, Finland, May 31st – June 3rd

HGM 2006 Newsletter – June 3rd

Beautiful biology

As you leave room 101, take a moment to enjoy the 'Biografia III' exhibition of works on paper, displayed by Paul Liam Harrison. Unique to the HUGO meeting, Biografia explores the developments in cell and gene research and the potential role of image making practice within this process. Paul is a Research Fellow and PhD researcher at the University of Dundee Visual Research Centre.



Sun seekers check out MC1R

While Spain has one of the lowest melanoma and associated mortality rates in Europe, the country is seeing the number of incidences increase faster than any other malignancy. Researchers at the Spanish National Cancer Centre are investigating which genetic factors influence melanoma development, and their poster (NO.100) describes the role of the melanocortin-1 receptor gene (MC1R) in determining melanoma risk.

Ugh! That's disgusting

"Why does broccoli taste good to some people and so awful to others and what can genetics tell us about this?" asks Lynn Jorde from the University of Utah. The answer partially lies in which bitter taste receptors you were born with.

Twenty-five genes are responsible for allowing humans to taste bitter substances, and these are remarkably variable between populations. According to Prof. Jorde, these genes have evolved so that people recognise the toxic substances in their own environment.

"We normally think of food preference as a cultural thing, so assume that if you grew up in a Thai household you'd like Thai food," said Prof. Jorde, "but now we are starting to see that food preferences are partly genetic."

The most studied taste receptor is the PTC gene. One variant allows people to taste PTC, which is similar to toxins found in broccoli and sprouts that can harm your thyroid gland if eaten in too large quantities, the other variant does not. However, both are prevalent in all populations. This, according to Prof. Jorde, means there are evolutionary advantages to being a 'non-taster', possibly providing people with the ability to detect a different toxic substance.

So why is it that as we grow older we are happier to eat our greens, even though we might have spat them out as children? "It may be that over time the expression of these taste receptors is downregulated, because we have eaten sprouts and haven't died," suggested Prof. Jorde.

Dyslexia: not hard to spell after all

Once considered too complex for geneticists, dyslexia now appears to be caused by subtle variations in gene expression. "Dyslexia was previously thought of as a complex disease, but it's turned out not to be as complex as we thought," said Juha Kere from Karolinska Institutet.

There have been numerous investigations into the causes of dyslexia, including studies on complexity of language or the anatomical and structural differences in the brain. Prof. Kere and his team have tracked down a number of genes in the last three years that strongly correlate with dyslexia. Central to the research is ROBO1, a gene controlling how frequently neurons cross the midline, originally discovered in *Drosophila*. There are only two known cases of a deleted ROBO1 in humans, which both resulted in severe dyslexia; ROBO1 is present in the rest of the population. Thus, according to Prof. Kere, it is slight changes in the expression or function of ROBO1 that alter the development of the brain, and result in dyslexia.





Mood swings and psychosis

'Schizophrenia' and 'bi-polar' as patient classifications have long seemed oversimplifications to clinicians. Indeed, it was 110 years ago when Emil Kraepelin split psychosis up into dementia praecox (schizophrenia) and manic-depressive insanity (bi-polar). "As a psychiatrist, I commonly see patients placed into one of these categories one year and the other the next," said Mike Owen from Cardiff University. "Other patients simultaneously experience symptoms of both conditions."

Genetic evidence is mounting to suggest that doctors should describe and treat an individual's symptoms rather than labelling patients with either condition. Genes such as G72 are associated with both schizophrenia and bipolar disorder. "Although this gene is more strongly associated with bipolar disorder than schizophrenia," said Prof. Owen, "when we look at all cases together and evaluate the association with mood disorder or psychotic episodes, we actually find a more significant association with mood disorder."

Not labelling patients 'bi-polar' or 'schizophrenic' could have significant patient benefits, given the different societal impression of these two disorders and the likelihood that their diagnosis will change.



Saturday's conference highlights

Workshop 73(XI): Iiris Hovatta

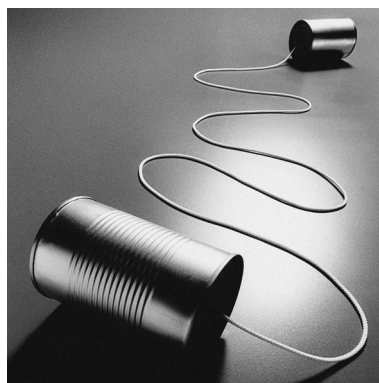
Glyoxalase I and glutathione reductase I regulate anxiety in mice

Symposium 24(VI): Mark Shriver

The genetic basis of normal variation in human skin colour?

Poster 16: Elia Pieri

Citizenship, responsibility and the promise of personalised medicine



Thanks to all who disclosed their secret genetic research. To submit further research for peer review, email hgm@northbankcommunications.com

O! Blue gene: predominantly expressed in the Southern US. Carriers exhibit facial hair and an increased ability hold on to a wild stallion while yelling "yee-hah". Varying expression causes peroxide hair, wearing big boots and dancing in formation.

Warhol gene: expressed once in a lifetime for fifteen minutes.

Billy gene: this gene, found on the Y chromosome, is upregulated by flashing lights, and loud music. Expression leads to donning afro wigs and wild crotch-grabbing dancing.

The Auber gene: when expressed causes an overwhelming fondness for ratatouille.

Levi gene: highly expressed between the ages of 15 and 21 leading to the perception that possessions must be branded. A drop in testosterone can reactivate Levi in later life often leading to the purchase of Porsches.

Aargh gene: upregulation of this gene causes stress, but it can be down regulated with chocolate. Extensive experimentation has shown that regular milk chocolate is the most effective; coffee chocolates have quite the opposite effect.

Hackman gene: more accurately the Hackman gene family. The balance of expression between these genes fluctuates over one's life, resulting in either excessive violence or pursuing a career as a 'super-villain'.

Teeny-bopper gene: expressed in early 'teens, and produces indestructible proteins that result in lifetime shame.

TXT MSG GN: 4 ppl tht dnt typ vwls

The Northbank team of Lorna Watson, Gemma Bradley, and Adam Michael are running the HGM 2006 press office facilities and compiled this newsletter