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This press release contains:

- Summaries of newsworthy papers:
  - Beauty is in the brain of the beholder
  - Stress may alter brain cell abundance

- Geographical listing of authors

A PDF of the paper mentioned on this release can be found in the Academic Journals section of http://press.nature.com. Press contacts for the journals are listed at the end of this release.

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[1] Beauty is in the brain of the beholder

DOI: 10.1038/MP.2014.1
The brain’s opioid system may play a role in human’s perception of, and desire to stare at, attractive opposite-sex faces, according to a study published in *Molecular Psychiatry*. The findings suggest that the human opioid system mediates social behavior by regulating the rewarding feeling of viewing evolutionarily valuable stimuli.

Visual information about others, specifically faces, plays a valuable role in human mate selection and bonding, and activates the same brain reward systems that food and money do. The reward system has a high density of μ-opioid receptors, which in rats have been shown to affect both how much one likes, and how much one wants, a rewarding stimulus. To investigate the role of μ-opioid neurotransmission in human reward, Olga Chelnokova and colleagues asked 30 healthy men to view photographs of female faces and then measured the aesthetic evaluation (“liking”), and motivation for viewing (“wanting”). When participants were given morphine – which increases μ-opioid receptor activity – they gave the most attractive faces a higher average rating, and viewed the faces they found more attractive for a longer period of time, while opting to change the picture more quickly if they found it unattractive. Alternatively, participants who were given a μ-opioid suppressor called naltrexone showed both reduced “liking” and “wanting” behavior: they did not rate the most attractive faces as high, and did not want to view the most attractive faces for as long.

The authors note that the opioid manipulations had a more pronounced effect on viewing the most attractive women, which in evolutionary terms, are the most valuable. They suggest that the human opioid system may play a role in social motivation by intensifying the rewards of the most valuable stimuli, while inhibiting the desire for less valuable social cues.

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**[2] Stress may alter brain cell abundance**

DOI: 10.1038/MP.2013.190

Stress may contribute to changes in cell composition in the brains of rats that increases their vulnerability to mental illness, according to a study published in *Molecular Psychiatry*. The results provide a potential avenue for new therapeutic targets to decrease the risk for developing mental illness after a stressful event.

A risk factor for mood and anxiety disorders is stress, though it can take years after a stressful event for these disorders, such as depression and post-traumatic stress disorder, to become apparent. While changes in the abundance of oligodendrocytes (the fatty white matter that insulates nerve cells) have been observed in a variety of mental health conditions, the mechanisms by which stress may lead to long-lasting structural changes in the brain are not well understood.

Daniela Kaufer, Sundari Chetty and Aaron Friedman show that in adult rats, stress decreases the generation of new neurons from neural stem cells (NSCs), while increasing the production of oligodendrocytes in the hippocampus (a brain region that is involved in regulating memory and emotion, and supports the generation of newborn neurons throughout life). Further studies in cell culture with rat adult hippocampal stem cells suggest that stress hormones, such as cortisol, directly induce oligodendrocyte production by triggering receptors that activate specific transcription factors that have been shown to play a role in the generation of oligodendrocytes.

The authors note that previous research indicated that NSCs were not capable of differentiating into oligodendrocytes, but these results suggest that while few are generated under normal conditions, exposure to stress can redirect cell fate, prompting NCSs to become oligodendrocytes. The authors
suggest that this alteration of the oligodendrocyte to neuron ratio could affect cognition by reducing the number of neural connections, and increasing myelination.

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**GEOGRAPHICAL LISTING OF AUTHORS...**

The following list of places refers to the whereabouts of authors on the papers numbered in this release. For example, London: 4 - this means that on paper number four, there will be at least one author affiliated to an institute or company in London. The listing may be for an author’s main affiliation, or for a place where they are working temporarily. Please see the PDF of the paper for full details.

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