to at least three or more stressful early life events. Alterations of this nature may consequently predispose such individuals to emotional and cognitive dysfunctions. These findings may have implications for understanding the pathways to psychiatric disorders of cognition and mood, and may provide some guide to the tailoring of treatment according to the patient's genetic/endophenotypic profile.

10-04

Identifying markers of negative mood: the gender-specific influence of COMT and MAO-A polymorphisms on emotion processing

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Background: Our integrative neuroscience model of emotion processing proposes that the effects of genetic polymorphisms on emotional function and risk for disorders of negative affect may vary with gender. The COMT Met allele has been related to anxiety traits (in women), while MAO-A genotypes have been linked to anxiety and phobic disorders (in women) and increased aggression (in men). Using a facial emotion perception task, we examined the role of neuroimaging endophenotypes in the association between COMT, MAO-A and negative mood, and the moderating effects of gender.
Methods: About 273 healthy subjects from the Brain Resource International Database provided data from cheek swabs (for genotyping). We assessed mood and temperament (using DASS and NEO), and emotion-related brain function (using event-related potential recording).
Results: COMT heterozygotes (V/M) were associated with higher neuroticism, and reduced and delayed neural responses to emotion in women. By contrast, while the MAO-A genotype showed no direct effects on negative mood, the high-activity alleles were associated with faster and greater responses to emotion in men.
Conclusions: The gender-related dissociation in the impact of COMT and MAO-A on emotion processing and negative mood suggests that these variants contribute to the differential expression of mood disorders in men and women. Integrative genotype-endophenotype makers may offer promise as a tool to aid in early identification of vulnerability to mood disorder and the selection of optimal treatments.

10-05

Genotypes and neural binding in negative affect: the contribution of genetic polymorphisms to 40 Hz gamma phase synchrony

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Objective: Binding of diverse neural activity is essential for complex cognitive and emotional functions. There is increasing evidence for the contribution of genetic polymorphisms to these functions, but their role in neural binding is unknown. We explored differences in 40 Hz gamma synchrony (an index of high-frequency binding) according to COMT Val108/158Met, BDNF Val66Met, MAOA and 5HTT-LPR genotypes, and their combined role in negative mood.
Methods: About 155 healthy subjects from the Brain Resource International Database provided cheek swabs (for genotyping) and were assessed for level of depressed mood and anxiety and early life stress. Gamma phase synchrony was extracted from EEG recordings during perception of facial emotion stimuli, pertinent to eliciting biases in negative affect states.
Results: Reduced synchrony to emotional expressions was related to higher depression, and enhanced synchrony to higher anxiety, suggesting distinct biases in binding with these aspects of mood. Consistent with this pattern, the 5HTT-LPR SS allele was linked to reduced frontal and parieto-occipital synchrony to fear with higher stress. The COMT Met allele was linked to similarly reduced frontotemporal synchrony to fear and happiness. By contrast, the BDNF Met allele was related to enhanced synchrony to both fear and happiness with higher stress, suggesting heightened sensitivity to emotion. Synchrony was also enhanced, right parietally and frontotemporally, for the MAO-A low-activity allele, particularly later in the time course.
Conclusion: Polymorphisms that influence brain function may have distinct effects on neural binding associated with processing salient signals of emotion,

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