Disorders of the Nervous System - Psychiatry

Wednesday, Jun 20: 10:30 AM - 11:45 AM
Oral Sessions
Wednesday - Oral Session

Presentations

1058: Down-regulation activity patterns of smoking cue reactivity prevents smoking behaviors

10:30 AM - 10:42 AM
Tobacco abuse is the leading preventable cause of disease and death in the world. Neurofeedback, as a non-invasive cognitive neurostimulation and psychophysiological procedure, which provides online feedback of EEG power in specific frequency band to the participant for self-regulation and helps them to facilitate relaxation and reduce anxiety, has been widely employed in drug addiction over four decades [1]. Although previous EEG neurofeedback protocols have advanced treatment in drug addiction, the efficacy still remains controversial [2], in part, because the regulated relation and anxiety are not specific to addiction core process. Thus, a novel EEG neurofeedback protocol is on demand. A number of studies have shown that smoking cue-reactivity is a central characteristic of smoking addiction and reducing brain reactivity to smoking-related cues has the potential to improve smoking cessation outcomes [3]. Based on these considerations, in the current work we developed a novel neurofeedback protocol, by which brain activity patterns corresponding to smoking cue-reactivity were repeatedly down-regulated.

Presenter

Junjie Bu, USTC

2706: Neuroimaging Correlates of Maternal Smoking Later in Life: Analysis of the UK Biobank Cohort

10:42 AM - 10:54 AM
Perinatal exposure to cigarette smoke has been linked to abnormal neurodevelopment in children and adolescents [sup]1-2[/sup], but it is unclear if there are structural brain abnormalities in exposed individuals in middle age and older adulthood. Here we analyzed structural neuroimaging data in a large-scale epidemiological cohort (the UK Biobank) to determine neural correlates of maternal smoking around birth (MSAB). Based on earlier work [sup]3-4[/sup], we hypothesized that cortical measurements would be preferentially associated with MSAB relative to subcortical gray matter, with the most robust effects in visual and somatosensory areas, brain regions that mature rapidly in the neonatal period. We further hypothesized that MSAB would moderate the relationship between age and brain metrics in regions associated with perinatal smoking.

Presenter

Lauren Salminen, University of Southern California

1079: Amygdala cue-reactivity encodes the shift from 'liking' to 'wanting' in nicotine use disorder

10:54 AM - 11:06 AM

Evidence suggests that the amygdala may play a crucial role in nicotine dependence and smoking cessation outcomes [1]. In particular, cue-reactivity studies showed heightened amygdala responses to nicotine cues, suggesting its engagement in nicotine craving [2,3]. Surprisingly, so far no link between nicotine-cue-induced amygdala responses and severity of nicotine dependence has been found. Here, for the first time, we present evidence that cue-induced amygdala reactivity is altered depending on the severity of nicotine dependence. This was accomplished by using a novel parametric cue-reactivity paradigm that allows for disentangling amygdala responses to craving (wanting) and valence (liking) characteristics of the presented nicotine cues. These two stimulus dimensions are usually intertwined in conventional non-parametric cue-reactivity designs, but by using this novel parametric design we now show that they have opposite effects on amygdala responses in mild vs. heavy smokers.

Presenter

Amelie Haugg, Psychiatric University Hospital Zurich

1425: Different impaired speed of brain FC, GM and SNP in schizophrenic progress: a multimodal study

11:06 AM - 11:18 AM

Schizophrenia is a highly heritable disease exhibiting structural and functional brain impairments. As different stages of illness and medication bring diversity to the disease, people are paying more attention to the progressive differences between first-episode schizophrenia (FESZ) and chronic patients (SZ). Studies on progressive variations of single modality, like grey matter (GM) or functional connectivity (FC), have largely been conducted [1, 2], but what is unclear is the order of when these changes happen and how these multimodal changes correlated with each other.

Presenter

Na Luo, Institute of Automation, Chinese Academy of Sciences

1179: Reproducible Functional Connectivity Alterations are Associated with Autism Spectrum Disorder

11:18 AM - 11:30 AM

Despite its evident socio-economic burden, early-childhood onset, lifelong persistence, high levels of impairment and absence of effective treatment, surprisingly little is known about the neurobiology underlying autism spectrum disorder (ASD). Several theories have been proposed to explain ASD at genetic, neuropathology, systemic and behavioral levels. On a systemic level, the hypothesis of abnormal brain functional connectivity has been introduced more than a decade ago. Yet, no consensus has been reached on the nature and clinical relevance of these alterations. Here we address these questions in the most comprehensive, large-scale effort to date comprising evaluation of four large ASD cohorts and reinforcing a strict replication strategy.

Presenter

Štefan Holiga, F. Hoffmann-La Roche

1340: Cross-disorder connectome examination reveals generally vulnerable connections of the human brain

11:30 AM - 11:42 AM

White matter pathways form the network for efficient communication between regions in the healthy brain (Bullmore et al., 2012; van den Heuvel et al., 2016). Within this network, connections important for facilitating global communication and information integration are potentially particularly vulnerable to disease effects due to their central role in the network (van den Heuvel et al., 2013). So far, the disease connectome field has been focused on examining network disconnectivity in one illness at a time, lacking discriminative power to identify cross-disorder patterns of white matter disconnectivity that may contribute to a wide range of brain disorders (Griffa et al., 2013). We set out to perform a large-scale cross-disorder examination into whether central connections in the human connectome have high involvement across twelve neurological and psychiatric disorders.

Presenter

Siemon de Lange, UMC Utrecht