on the Empathic Accuracy Test than those receiving placebo (p<.03, d=.92 post-treatment and p=.03, d=.98 at 1 month follow-up). There were no OT-related effects for the other tests but there was a main effect of time on the Eckman Facial Recognition Test (p<.0001 post-treatment and p<.0001 at 1 month follow-up). There were no significant changes in clinical symptoms and cognition though a main effect of time for the MCCB neuro-cognitive composite score indicated improvement across both groups (p<.01 at 1-month follow-up). In addition, there was a significant increase in left-hemisphere N170 amplitude for emotion identification in participants who received OT (p<.05 at 1 month follow-up), but not in those receiving placebo.

Discussion: This study demonstrates possible therapeutic benefits of administering OT prior to training sessions that target social cognition. The effects of OT were most pronounced for empathic accuracy, a high-level social cognitive process, which has been shown to be more difficult to modify with current social cognition remediation programs. The benefits of OT can be attributed to enhancement of learning from training sessions rather than acute effects on testing ability since all assessments were scheduled at least 1 week apart from treatment administration. We also found that mu suppression was greater on OT than placebo and that OT reduced pupillary dilation to fearful faces. These findings indicate that OT is engaging areas of the brain associated with the processing of social information.

**CP04: Addiction**

**Speaker: David Nutt, UK**

**Abstract**

My talk will focus on the brain mechanisms of addiction with a particular emphasis on the use of brain imaging [both PET and MRI]. I will discuss the latest research in relation to the neurotransmitter mechanisms of addiction and show how we can develop imaging techniques to explore the modes of actions of existing and novel treatments for addiction.

**References**

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Nutt DJ, Lingford-Hughes A, Chick J (2012) Through a glass darkly: can we improve clarity about mechanism and aims of medications in drug and alcohol treatments? Journal of Psychopharmacology 26(2) 199–204

Nutt DJ Lingford-Hughes A (2008) Addiction: the clinical interface. Brit J Pharmacol 154: 397–405

**Speaker: Toshikazu Saito, Japan**

**Abstract**

The concept of addiction will be discussed in the context of alcohol-related disabilities. In this lecture, the focus of addiction will be alcohol dependence.

**S24: Novel Therapies for Psychiatric Disorders: From Translation to Implementation**

**Chair: Michael Berk, Australia**

**Co-Chair: Tijen Uktan, Turkey**

**Speaker 1: Peter Kalivas, USA**

**Title: Glutamate Transport: A new bench to bedside mechanism for treating drug abuse**

**Abstract**

Glutamate transmission in cortical synapses into the basal ganglia, in particular into the nucleus accumbens, are markedly altered by addictive drugs. A primary alteration seen after withdrawal from all addictive drugs in self-administration animal models of addiction is a reduction in the elimination of glutamate that is released from these synapses. Specifically, there is a reduction in the glial glutamate transporter EAAT2. As a result of reduced EAAT2 the fidelity of cortico-accumbens transmission is corrupted such that when an animal trained to associate a cue with drug delivery is shown that cue in the absence of drug, the cue is highly motivating to seek the drug. This level of motivation is associated with a number of transient changes in the cortico-accumbens synapses that collectively indicate that the synapses are transiently potentiated (t-SP). Importantly, the same self-administration protocol for a natural reward such as sucrose pellets does not alter EAAT2, nor is cue-induced sucrose seeking associated with t-SP. After a brief description of the cortico-accumbens neuropathology that appears to contribute to relapse in animal models of addiction, we will discuss the success we and other have had at inhibiting relapse in animal models by pharmacologically restoring EAAT2. In the preclinical literature, restoration of EAAT2 can be accomplished by repeated administration of a number of compounds, including N-acetylcysteine (NAC) and ceftriaxone. However, because NAC is orally active and has a long record of clinical use for acetaminophen overdose and as a mucolytic agent in cystic fibrosis, we and others have examined NAC in clinical trials for treating addiction and other neuropsychiatric diseases that are characterized in part by symptoms of intrusive thinking. Here, I will highlight recent trials with marijuana and cocaine addicts, as well as patients co-morbid for post-traumatic stress disorder (PTSD) and substance use disorder. In these studies, NAC was at least partly effective at reducing craving, relapse and/or criteria for a
diagnosis of PTSD. Finally, I will discuss aspects of the various trials that point to how NAC may be most effectively employed clinically in combination with psychosocial interventions, and perhaps other pharmacological treatments.

**Speaker 2: Olivia Dean, Australia**

**Title: Minocycline as an adjunctive therapy for unipolar depression**

Dean OM1,2, Maes M3, Berk L1, Ashton M1, Kanchanatawan B4, Sughondhabirom A5, Tangwongchai S4, Ng C3, Dowling N5, Malhi GS6,7, Berk M8,9

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**Abstract**

There has been a decline in new therapies for unipolar depression. Current pharmacological therapies are attributed to symptom remission in only 30% of individuals with unipolar depression. As such, there is a clear need for the development of new therapies, instigated by investigators rather than reliance on pharmaceutical companies.

There have been significant advancements in the understanding of the underlying pathophysiology of unipolar depression. Significant evidence is available to suggest that unipolar depression is mediated by inflammation. This is demonstrated by the induction of depressive symptoms following pro-inflammatory treatment (e.g. interferon in hepatitis-C) and more importantly, by alterations in peripheral cytokine levels in individuals with unipolar depression. Given this, we planned to trial a treatment specifically targeting inflammation as an adjunct to usual for individuals with moderate-severe unipolar depression. The agent selected is minocycline, a tetracycline antibiotic which has also been shown to inhibit microglial activation and also reduce oxidative stress, augment glutamate pathways and promote neuronal growth. This agent is of particular interest as in addition to increased inflammation, depression is also characterized by increased oxidative stress, altered glutamate function and decreased levels of neuronal growth factors (e.g. BDNF). We have completed a pilot double-blind placebo controlled trial of 200mg/day of minocycline as an adjunct to treatment as usual. The study includes 12 weeks of treatment followed by a follow-up visit 4 weeks later. The primary outcome measure for the study is the Montgomery Asberg Depression Rating Scale and a variety of clinical impression, functioning and quality of life scales are also included as secondary outcomes. The last study visit will be completed in December 2015 and results will be available in early 2016 to determine the preliminary efficacy of minocycline as an adjunctive therapy for moderate to severe unipolar depression.

**Speaker 3: Felice Jacka, Australia**

**Title: Novel therapies for psychiatric disorders: from translation to implementation**

**Abstract**

With depressive disorders the leading source of disability globally, the identification of new targets for prevention and management is imperative. A rapidly emerging field of research suggests that the microbiome-brain axis is of substantial relevance to mood and behavior. Similarly, unhealthy diet has recently emerged as a significant correlate of and risk factor for depression. This review provides evidence for the gut microbiota as a key factor mediating the link between diet and depressive illness and focuses on the potential of gut-focused interventions for the prevention and treatment of mood disorders.

Recent findings: The development of new technologies is allowing a better understanding of how diet influences gut microbiota composition and activity and how this may, in turn, influence depressive illness. New evidence is also pointing to the possible utility of pre and probiotic formulations and fermented food in influencing mental health.

**Summary:** Although in its early stages, the emerging field of research focused on the human microbiome suggests an important role for the gut microbiota in influencing brain development, behavior and mood in humans. The recognition that the gut microbiota interacts bi-directionally with other environmental risk factors, such as diet and stress, suggests promise in the development of interventions targeting the gut microbiota for the prevention and treatment of common mental health disorders.

**Keywords:** Microbiota, depression, diet, psychiatry, inflammation, prevention

**Speaker 4: Michael Berk**

**Title: A Randomized Controlled Trial of the Efficacy of Mitochondrial Agents in the treatment of Depression in Bipolar Disorder**

Berk M1, Turner A1, Malhi GS2, Ng C3, Cotton SM4, Dodd S1, Sarris J1, Samani Y1, Tanious M1, Dowling N1, Waterdrinker A1, Smith D1, Dean OM1.

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**Abstract**

**Introduction:** Depression in bipolar disorder is complex to treat, with few efficacious agents. Bipolar disorder thus is a significant burden on individuals, caregivers and the broader community. Current treatments are generally more effective against manic than depressive symptoms. The current study capitalises on recent evidence that alterations in mitochondrial function occur in bipolar disorder. Since there are many agents that have actions on mitochondrial bioenergetics, that this may be a druggable target.

**Methods:** This was a 3 arm 16-week study which aimed to explore the potential effects of placebo, N-acetylcysteine (NAC) alone or NAC in combination with a combination of agents believed to enhance mitochondrial function in addition to any existing treatments (acetyl-l-carnitine, ubiquinone, alpha tocopherol, magnesium, thiamine, riboflavin, nicotinamide, calcium pantothenate, pyridoxine, folic acid, cyanocobalamin, calcium ascorbate, retinyl palmitate, cholecalciferol, biotin). The study included adults with bipolar disorder currently in an episode of