healthy controls. One major task of the brain imaging part of PRONIA is to maximize subject separability by assessing and evaluating the cross-center MRI scanner variations. This presentation focuses on strategies to manage MRI variations in multicenter research projects, will introduce the approach of the PRONIA consortium and illustrate initial results from the PRONIA calibration study.
Methods: For the PRONIA calibration study, six healthy subjects travelled to the participating sites and were scanned with the PRONIA MRI protocol (modalities: structural T1-weighted MRI, resting-state functional MRI, diffusion tensor imaging and B0 field mapping).
Results: Based on the acquired calibration data sets, several analysis procedures will be applied to quantify the cross-center effects. Voxel-wise intra-class correlation coefficient (ICC) maps will be computed to study the test–retest reliability of MRI measures for the different modalities. Moreover, MRI bias field analyses will be conducted, which are especially important in the presence of varying coil sensitivities. In addition, multi-variate pattern recognition analyses (MVPA) will be implemented to directly assess the center variations and correct these effects with a minimal loss of relevant clinical information. Respective results will be shown in the oral presentation.
Conclusion: This work emphasizes the importance of assessing and controlling MRI variations in multi-center brain imaging studies. Especially in the case of neuropsychiatric projects like PRONIA, where subtle changes in structural and functional brain imaging data sets are searched for, center effects may play a major role and therefore have to be investigated in detail.
Policy of full disclosure: None.

S-30-004
Predicting outcomes other than psychosis: past experiences and future approaches

S. Wood (University of Birmingham, Birmingham, United Kingdom)

Objective: The majority of individuals at ultra-high risk (UHR) for psychosis do not transition to frank illness. Nevertheless, many have poor clinical outcomes and impaired psychosocial functioning. Predicting such outcomes has become a primary goal of clinical high risk research, using symptom, epidemiological, cognitive and imaging data.
Methods: I will present data from the PACE 400 follow-up study of young people at ultra-high risk for psychosis, covering prediction of non-psychotic disorder, persistent attenuated psychotic symptoms, and low social and role functioning.
Results: We have demonstrated that poor functional outcomes are associated with early childhood trauma, poor memory function at baseline assessment, and reduced grey matter in medial prefrontal cortical areas. Furthermore, persistent attenuated psychotic symptoms are associated with the presence of comorbid non-psychotic disorders over follow-up, and reduced grey matter in right prefrontal cortex at baseline.
Conclusion: Prediction of non-psychotic outcomes from the at-risk mental state is possible, but to date has only been conducted in single modalities and at the group level. The PRONIA study will address both of these issues in the coming years, and I will outline this approach in the talk.
Policy of full disclosure: Work relevant to the talk was funded by the NHMRC Australia, the Colonial Foundation, and NARSAD. PRONIA is a Collaboration Project funded by the European Union under the 7th Framework Programme under Grant Agreement No. 602152.

S-31 Avolition and asociality: bridging gaps between animal and human research

S-31-001
Pathophysiological mechanisms of avolition in deficit schizophrenia

A. Mucci (University of Naples, SUN Department of Psychiatry, Naples, Italy; S. Galderisi)

Objective: Negative symptoms represent a widely recognized unmet treatment need of schizophrenia that substantially limits functional recovery. Assessment and classification of this psychopathological dimension has been challenging and the identification of relevant biomarkers might advance the search for innovative treatments.
Methods: Event-Related Potential (ERP) and fMRI (fMRI) recordings were carried out by our group during the Monetary Incentive Delay Task to identify biomarkers of primary and persistent Avolition. Patients with schizophrenia were classified as either Deficit or Non-deficit Schizophrenia, based on the Schedule for the Deficit Syndrome.
Results: Functional MRI results showed that only patients with deficit schizophrenia (DS), a subtype characterized by primary and persistent negative symptoms, did not activate the dorsal caudate. This abnormality correlated with Avolition. DS patients showed abnormalities of an early ERP microstate (MS), during reward anticipation. For the same MS, sLORETA demonstrated current source density reduction in bilateral posterior occipito-temporal regions, posterior cingulate, as well as in left frontal and parietal areas only in patients with DS as compared with controls.
Conclusion: According to our findings, the lack of activation of the dorsal caudate, as well as topographic and tomographic ERP abnormalities in the early processing stages of rewarding stimuli, might be of interest in the search for biomarkers of primary and persistent negative symptoms and appropriate pharmacological or non-pharmacological interventions targeting them.
Policy of full disclosure: This study was funded in part by Compagnia di San Paolo, Turin, ltaly, within the project 'Reward system and primary negative symptoms in schizophrenia' (Grant No. 2008.24011).

S-31-002
Longitudinal course of two measures of avolition and expressivity: hypokinesia and gesture impairment

S. Walther (University of Bern, Department of Psychiatry, Bern, Switzerland; K. Stegmayer)

Objective: The negative syndrome in schizophrenia describes different behaviors. Two major components have been proposed: avolition and reduced expressivity. We applied objective asssessments to measure the impact of avolition and reduced expressivity longitudinally in patients with schizophrenia spectrum disorders. We hypothesized that both tests would indicate stable courses of avolition and expressivity.
Methods: In the first study, we measured spontaneous motor activity using wrist actigraphy allowing to monitor hypokinesia within and between psychotic episodes. In the second study, we tested gesture performance in a group of 26 schizophrenia patients twice with 6 months in between assessments. In the second study, we also obtained information on functional outcome.
Results: At group level motor activity was stable both within and between episodes, however we noted impressive interindividual

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variance in the longitudinal course. Within episodes, low activity levels at baseline predicted decline of negative symptoms. Between episodes, higher activity levels at index episode predicted increased negative syndrome severity at the later episode. Gesture performance demonstrated little variance over 6 months. Baseline performance however, predicted both negative symptom severity and functional outcome at 6 months, even when controlling for baseline negative symptoms.
Conclusion: Both measures for avolition and reduced expressivity objectively predicted the longitudinal course of negative symptoms. These tests may aid monitoring of negative symptoms in treatment studies and thus may later guide clinical reasoning.
Policy of full disclosure: None.

S-31-003
NMDA receptor antagonists in rodents, relevance to negative symptoms of schizophrenia: a translational link to humans

J. Neill (University of Manchester, Pharmacy, Manchester, United Kingdom)

Objective: To provide improved animals models of cognitive deficit and negative symptoms of schizophrenia. Our aim is to evaluate the effects of sub-chronic treatment with the non-competitive NMDA receptor antagonist, PCP on behaviours in rats of relevance to negative symptoms in patients: social withdrawal and blunted affect.
Methods: Adult female hooded-Lister rats received PCP (2 mg/kg) or vehicle via the intraperitonal route twice daily for 7 days. After at least 7 days' washout, rats were tested in social behaviour, affective bias and optimistic bias tests following acute treatment with atypical antipsychotics and novel targets for schizophrenia such as KV3 channel modulators.
Results: Sub-chronic treatment with PCP induced a significant and robust reduction in social behaviours such as sniffing and following and an increase in avoidance behaviour in female rats. These effects were attenuated by atypical antipsychotics, specifically low dose risperidone and a KV3 channel modulator, but not by classical antipsychotics. Sub-chronic PCP treated rats showed a negative affect bias and pessimistic cognitive bias.
Conclusion: Our findings suggest that sub-chronic NMDAR antagonist treatment can enhance our understanding of the psycho and neuropathology of specific negative symptom domains and allow early detection of novel pharmacological targets.
Policy of full disclosure: I have received expenses to attend conferences and fees for lecturing and consultancy work (including attending advisory boards) from the manufacturers of various antipsychotic drugs.

S-31-004
Animal models of the genetic contribution to avolition and anhedonia: relevance to human research

C. O'Tuathaigh (University College Cork, School of Medicine, Cork, Ireland)

Objective: Phenotypic modelling of negative symptoms of schizophrenia in rodents has largely focused on a limited set of quantifiable, cross-species behavioural features, e.g., deficits in social interaction, motivation and anhedonia. Using a preclinical genetic approach, we investigated whether simultaneous disruption of two prominent schizophrenia risk genes, neuregulin-1 (NRG1) and disrupted-in-schizophrenia 1 (DISC1), in mice, would produce a negative symptom-relevant phenotypic profile that differed from that observed following disruption to either gene alone.
Methods: Mice containing a mutation in exon 2 of mouse DISC1 were inter-crossed with mice having heterozygous deletion of NRG1, and were assessed across the following negative symptom-associated measures in adulthood: sociability and social novelty preference, dyadic social interaction, nest-building, sucrose preference.
Results: Mice with partial or complete co-disruption of DISC1 and NRG1 function demonstrated pronounced impairments across various domains of social behaviour and anhedonia implicated in schizophrenia. This negative symptom-like profile in compound mutant mice, largely restricted to males, was reflected in disruption across various measures of social interaction, as well as self-neglect, relative to controls. These deficits were accompanied by changes in hypothalamic expression of the oxytocin and/or vasopressin genes.
Conclusion: The absence of effective pharmacotherapeutic strategies for negative symptoms reflects the inadequacy of our knowledge of the pathophysiology of this category domain; improved understanding of the neurobiological basis of this domain of psychopathology will allow us to develop better preclinical models and increase the likelihood of developing treatments for these treatment- resistant symptom dimensions.
Policy of full disclosure: None.

S-32 Social cognition in schizophrenia: new task developments and establishing paradigms

S-32-001
Ambiguous emotion identification in schizophrenia: preliminary findings of a novel assessment task with culturally unfamiliar stimuli

K. Kölkebeck (University of Münster, Department of Psychiatry, Münster, Germany; A. Vosseler, T. Fasshauer, W. Kohl, S. Minoshita, S. Satoh, R. Lencer)

Objective: Patients with psychiatric disorders have deficits in identifying facial emotions, but a differential deficit has not been reliably shown. A novel task that utilizes ambiguous emotional stimuli, photos of a Japanese female mask, was able to demonstrate distinct emotion identification patterns in Japanese patients, which makes the task interesting for application also in Western patient groups, e.g., in schizophrenia.
Methods: After verifying its validity in a Western sample of healthy volunteers, the "Noh mask test" was administered to a group of 20 patients with schizophrenia and age- and gender-matched controls. Reaction times and emotion attribution patterns were recorded.
Results: Results of patients with schizophrenia indicated overall longer reaction times in patients. Patients rated the Noh mask as more pleasant, indicating happy as a predominant emotion, with less variety in their answer behavior.
Conclusion: We present data from the ongoing study that introduces a novel stimulus set with features of out-groups as a potential marker for emotion identification abnormalities in schizophrenia and discuss implications of future research.
Policy of full disclosure: None.

S-32-002
New tools for assessing social cues in schizophrenia

R. Fusaroli (Aarhus University, Aarhus, Denmark; A. Simonsen)