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A brief summary of the articles appearing in this issue of *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*.

### Special Issue: Corollary Discharge: Circuits to Psychosis

People with schizophrenia experience abnormalities in a sense of agency, which may stem from abnormalities in corollary discharge (CD) signals that are sent from motor to sensory areas. The most robust psychophysiological and neurophysiological data regarding CD signaling in both humans and nonhuman primates comes from the study of eye movements. In this paper, **Thakkar and Rolf**s (pages 773–781) review studies of oculomotor CD signaling in schizophrenia and possible neurobiological correlates of CD disturbances. The authors conclude by speculating upon the ways in which oculomotor CD dysfunction, specifically, may invoke specific experiences, clinical symptoms, and cognitive impairments.

Neural circuits for cognition interact with and build on those for movement. Principles of motor control therefore provide a conceptual framework for elucidating cognitive control. When a movement command is sent toward muscles, a copy or corollary discharge of the command feeds back to maintain coherent perception and behavior. In this review, **Subramanian et al.** (pages 782–790) examine evidence for analogous cognitive CD signals during decision making, formalize how they may be used, and discuss how this framework maps to brain circuits.

The sounds that a person produces while speaking elicit less activity in the auditory regions of the brain than externally produced sounds, a phenomenon known as speaking-induced suppression. People with schizophrenia exhibit lower levels of speaking-induced suppression compared with healthy people. **Whitford** (pages 791–804) reviews this literature, providing a plausible explanation for the auditory-verbal hallucination symptoms of schizophrenia, which may reflect inner confusion as to the origins of self-generated actions and thoughts.

The ability to predict the sound of one's own voice while speaking plays an important role in the active control of speech and may be dysfunctional in neuropsychiatric disease. Animals models to understand the underlying neural mechanisms are unfortunately lacking. Here, **Eliades and Wang** (pages 805–812) review recent literature on auditory processing during vocalization in marmoset monkeys. These results demonstrate

specialized processing in the marmoset auditory system during vocalization, results that closely parallel findings in humans.

The cerebellum plays a vital role in movement. Although less studied, the cerebellum is also central to cognitive processes, with dysfunction leading to psychiatric illness. This review by **Person** (pages 813–819) describes work on self-generated motor signals in the cerebellum for motor control, with the intention that these insights will shed light on the potential role of self-identity signals in psychiatric illnesses at a mechanistic level.

The predictive deficits observed in psychotic disorders may be related to cerebellar dysfunction. **Moberget and Ivry** (pages 820–831) review evidence for this hypothesis. The authors focus on clinical, behavioral, and neuroimaging findings suggesting cerebellar involvement in psychosis, and they present a relatively novel line of research exploring whether computational models of cerebellar motor function can also account for cerebellar involvement in higher-order human cognition. They conclude by highlighting some key gaps in these literatures, limitations that currently preclude strong conclusions regarding cerebellar involvement in psychosis.

Evidence indicates that psychosis and its characteristic states of mind do not arise suddenly, but rather occur as a progressive change in subjective experience that may begin in early childhood. This change in sensory prediction, which occurs as a result of altered CD mechanisms, reflects a shift in an individual's sense of self-generated versus externally generated actions. **Poletti et al.** (pages 832–841) review this concept from neurodevelopmental, phenomenological, and clinical perspectives and discuss the implications of this framework.

How do we distinguish between sensory inputs that are the result of our own self-generated movements and those caused by events in the external world? Recent studies, reviewed here by **Brooks and Cullen** (pages 842–850), have addressed this question by showing how motor commands influence sensory processing during active behaviors. This strategy, which is common across sensory systems, underlies the ability to achieve both perceptual stability and accurate motor control during everyday activities.