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IMAGE

Cortical GABA neurons and self-focus in depression: a model linking cellular, biochemical and neural network findings

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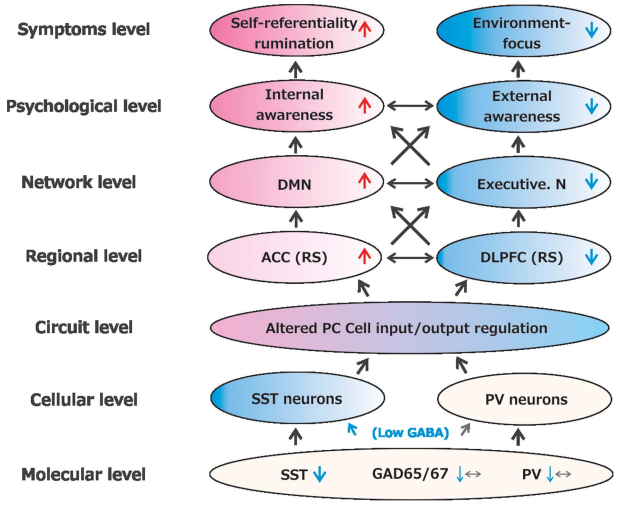

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Major depression is characterized by a shift in awareness, manifested as increased self-focus and rumination. Sufficient empirical data have now accumulated to support a bottom-up biological model that links these psychological concepts and symptom dimensions to observed biochemical, cellular, regional and neural network deficits. Specifically, relative deficits in inhibitory gamma amino butyric acid (GABA) regulating excitatory cell input (somatostatin (SST)-positive neurons) and output (parvalbumin (PV)-positive neurons) and local cell circuit processing of information in key brain regions may underlie the shift that is observed in depressed subjects in resting state activities between the perigenual anterior cingulate cortex (PACC) and the dorsolateral prefrontal cortex (DLPFC). This regional dysbalance translates at the network level in a dysbalance between default-mode (DMN) and executive networks, which psychopathologically surface as increased self-focus and rumination. GAD65/67, glutamic acid decarboxylase, 65 and 67 isoforms; red, increased; blue, decreased; grey, low effect. For more information on this topic, please refer to the article by Northoff and Sibille on pages 966–977.

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