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g the brain is the most highly evolved organ of the human species, and many fundamental questions concerning human ... e even the most basic brain functions. For example, in order to understand how the brain mediates and characterized functional connections between primary auditory cortex located within Heschl's gyrus and a secondary auditory field of the posterior superior temporal gyrus (Howard et al., 2000) (Fig. 78.4). This same group has been studying connectivity between the auditory system and the visual system to explore the functional plasticity of the primary auditory cortex (Howard et al., 2001). Using the ... in a region spanning from the auditory cortex to the visual cortex, they have shown that this region is highly plastic and is capable of reorganizing in response to changes in the environment.

**Excessive GABAergic transmission:**

The brain is also highly sensitive to changes in the extracellular environment, particularly in the case of neural excitability. An excessive GABAergic transmission, for example, can lead to seizures. Seizures are a result of uncontrolled neuronal activity in the brain, which can be triggered by a variety of factors such as lack of sleep, stress, or genetic predisposition. GABA is a neurotransmitter that plays a crucial role in inhibiting neuronal activity, and excessive GABAergic transmission can lead to a state of hyperexcitability, where neurons are more likely to fire and can lead to the onset of seizures.

These findings highlight the importance of understanding the complex interplay between different neurotransmitters and their receptors in maintaining neural homeostasis. It is also important to note that the integration of these findings into clinical practice can lead to the development of targeted therapies for neurological disorders. For example, the identification of the mechanisms underlying excessive GABAergic transmission can lead to the development of drugs that can modulate GABAergic transmission and help alleviate symptoms of neurological disorders such as epilepsy.

**Summary:**

The study of the brain as a system is an ever-evolving field that continues to shed light on the complex interplay between different neurotransmitters and their receptors. Understanding these mechanisms is crucial for the development of targeted therapies for neurological disorders. As our knowledge grows, so too does the potential for improving the lives of those affected by these conditions.
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• Fully revised and updated with greater emphasis on therapeutic principles

• Reviews the underlying mechanisms that lead to neurological dysfunction

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