

# Transmitter Receptor Systems in Cingulate Regions and Areas

Nicola Palomero-Gallagher and Karl Zilles

## Chapter contents

**Goals of this Chapter** 32

**Cingulate-Section**

**Autoradiography Method** 33

**Neurotransmitter Receptor**

**Distribution Patterns** 33

Glutamatergic System 33

GABAergic System 43

Cholinergic System 45

Noradrenergic System 49

Serotonergic System 51

Dopaminergic System 52

**Cingulate Regional Neurotransmitter**

**Organization** 53

Receptor fingerprint analysis 53

Multivariate Models 54

**Clinical Implications of Transmitter System Organization** 56

Glutamatergic neurotoxicity in neurodegenerative disorders 56

Benzodiazepine binding site 57

Mood disorders: GABAergic, noradrenergic, and serotonergic systems 57

**Acknowledgements** 58

**References** 58