Cortical GABAergic interneurons are dauntingly heterogeneous in properties like morphology, electrophysiology and protein expression. Recent methodological innovations made it possible to start dissecting the functional implications of this diversity. This thesis investigates the circuitry within GABAergic interneurons by combining patch clamp recordings with cell-type specific expression of Channelrhodopsin-2. More specifically, inhibitory inputs from VIP and PV cells to L2/3 and L5 GIN cells are assessed in terms of relative frequency, strength, kinetics, short-term dynamics, modulation by GABAs and innervation patterns. Experiments establish a new circuit motif from PV cells to SOM cells. Additionally, there are some cell-type specific differences in inhibitory inputs. Optically evoked IPSCs derived by VIP fibers have higher latency and lower strength (in regard of amplitude and integral). Moreover, mapping experiments suggests that PV input is of intralaminar origin, whereas VIP input is of extralaminar origin. PV fibers show a pronounced short term depression as it is known for other postsynaptic targets. VIP fibers, however, depress only mildly at 40 Hz. Interestingly, modulation by baclofen decreased inhibitory synaptic inputs to 41 %, but did not show differences between cell types. The described results provide new insights and suggestions for the interaction between different kinds of inhibition and their functional purpose.