Supplementary Tables

	NGC	SBC	DBC	BP	MC	BTC	LBC	NBC	ChC
	Neurogliaform Cell	Small Basket Cell	Double Bouquet Cell	Bipolar Cell	Martinotti Cell	Bitufted Cell	Large Basket Cell	Nest Basket Cell	Chandelier Cell
	Dwarf cell, button-type cell	Clutch Cell	Bitufted interneuron, Horse-tail Cell	Bitufted Interneuron	Bitufted Interneuron	Bitufted Interneuron	Common Basket Cell	Willow Cell, Arcade Cell, Shaft-biased Cell, atypical Basket Cell	Axo-axonic Cell
CB	-	++	+	-	++	++	++	++	+
PV	-	-	-	-	-	-	+++	+++	-
CR	-	-	+	++	-	++	+	++	-
NPY	+	+	-	-	++	+	+	+	-
VIP	-	+++	+++	+++	-	+	+	+	-
SOM	-	++	++	++	+++	++	-	-	-

Table S1: Classification of interneuron types used in the NMC model according to which primary marker they express.
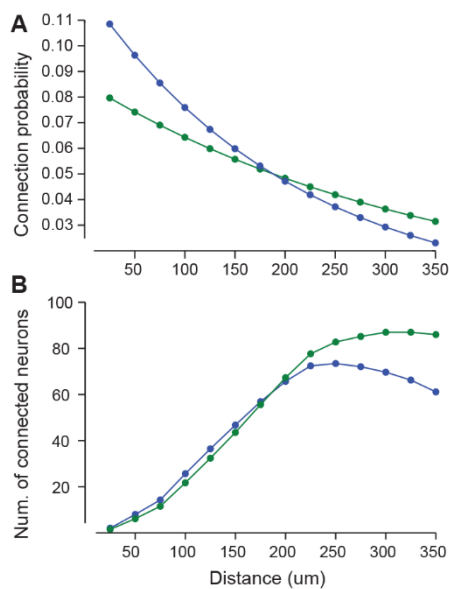
Supplementary Figures

Figure S1: Distance dependence on connection probability and of the number of connected neurons. A: Intra-laminar, distance dependent connection probabilities of connections from Martinotti Cells to Pyramidal Cells (blue) and between Pyramidal Cells (green) in the reconstructed microcircuitry. B: Total number of connected neurons at various distances resulting from the probabilities in A. Comparatively large differences in connection probabilities at low distances have a lower impact on connected neuron count than smaller differences at higher distances.
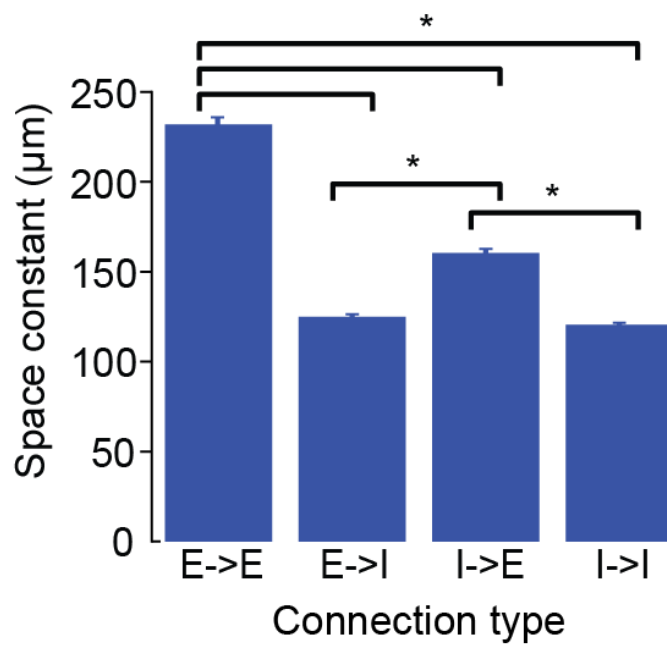
Figure S2: Mean space constants of exponential fits to the distance dependent connection probabilities for connection types in the four fundamental classes (E: excitatory, I: inhibitory). Bars indicate means for all neuron type specific connection types in a class, error bars SEM.
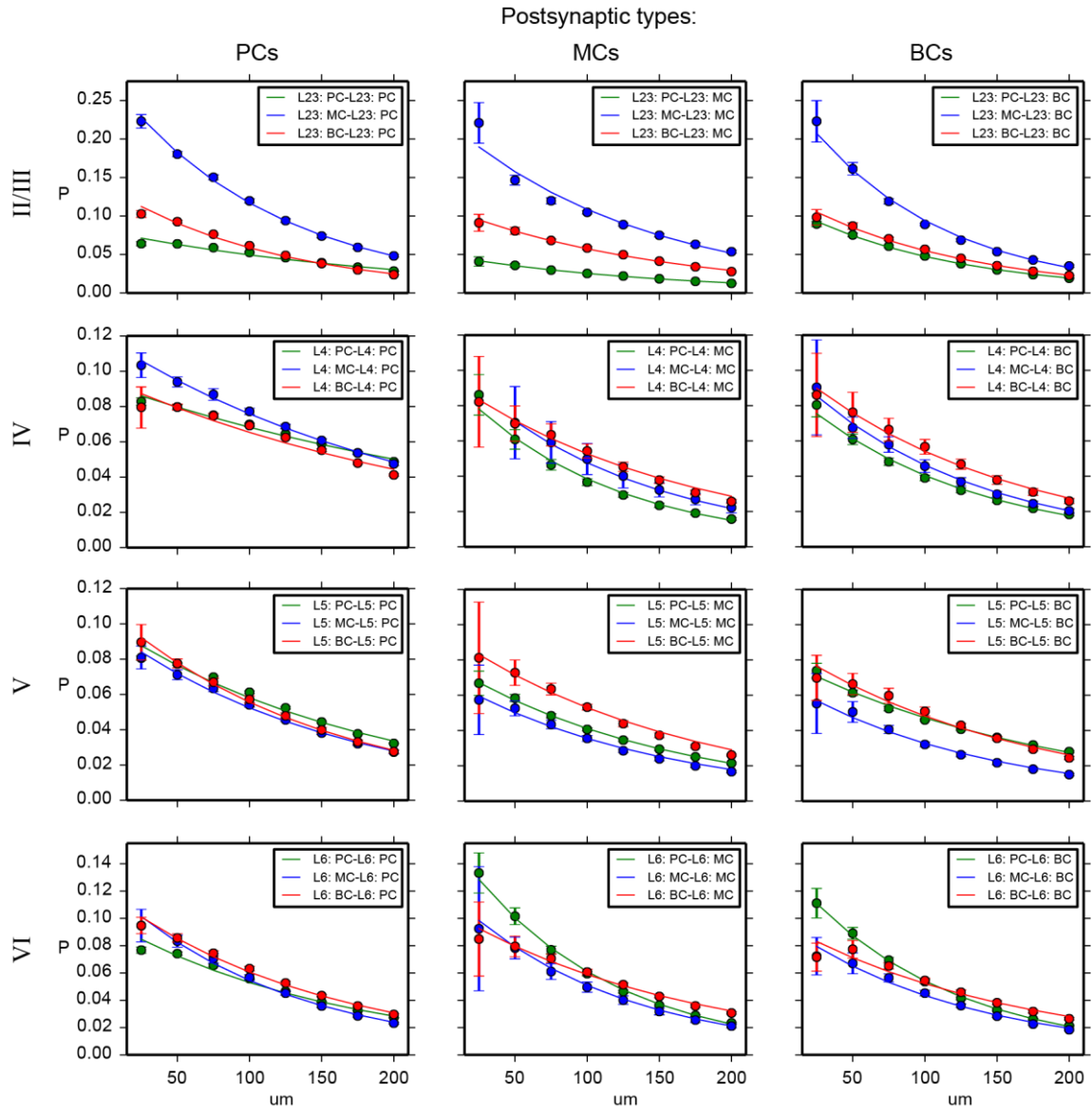
Figure S3: Distance dependent connection probability profiles with exponential fits as in **Fig 3B** for connection types within a layer.
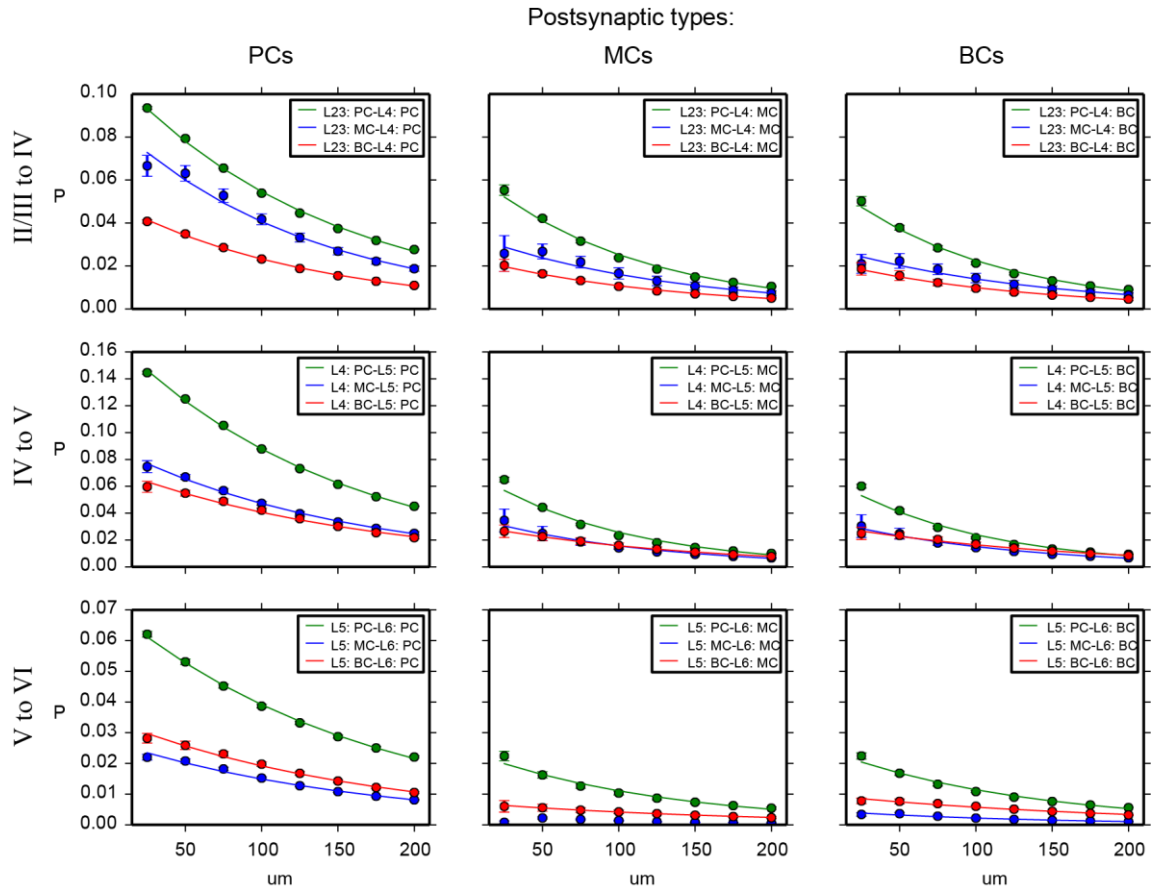
Figure S4: Distance dependent connection probability profiles with exponential fits as in **Fig 3B** for connection types crossing layers downwards.
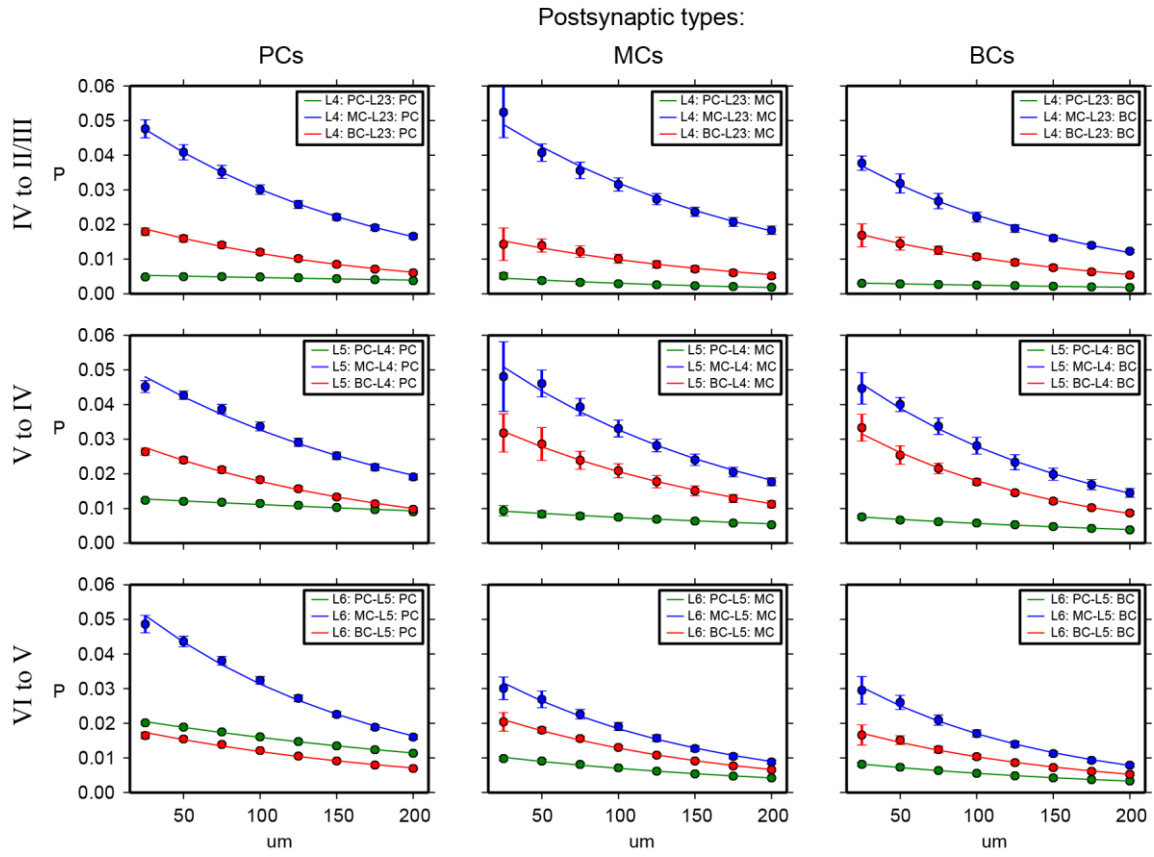
Figure S5: Distance dependent connection probability profiles with exponential fits as in **Fig 3B** for connection types crossing layers upwards.
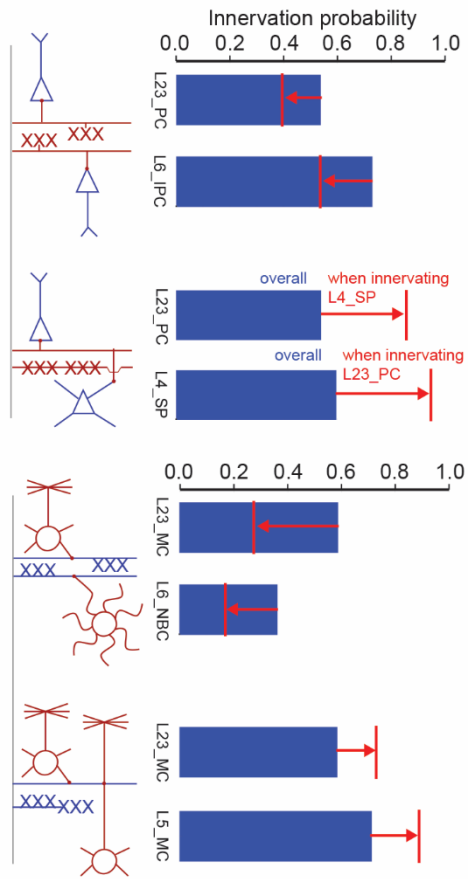
Figure S6: Examples of rules of connectivity extracted from the overview in Figure 5D. Left side shows a schematic, right side quantifies the strength of the effect. Blue bars: Overall probability of a randomly picked neuron innervating / being innervated by at least one neuron of the indicated type, red lines: probability given that the neuron innervates at least one neuron of the the other indicated m-type. Top to bottom: Neurons tend to avoid innervating PCs in layer 2/3 and IPCs in layer 6 together; they tend to innervate PCs in layer 2/3 and SPs in layer 4 together or neither of them; tend to be innervated by either MCs in layer 2/3 or NBCs in layer 6; tend to be innervated by both MCs in layer 2/3 and MCs in layer 5 or by neither of them. Corresponding MI values are indicated in Figure 5D by red circles.
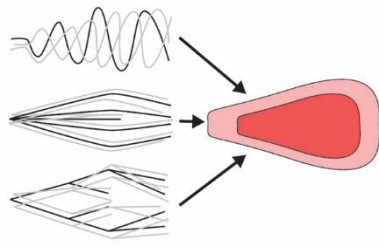
Figure S7: Locally very different dendritic branching patterns (left) giving rise to comparatively similar average 'cloud' representations.