

Tab. 1. Descriptive table of the studies in Figure 04.

Study	Parameters	Method	Comparisons	Results
	Neurotransmitter		Controls x rodent models	
Coune et al 2013_1	GABA	HPLC	6-OHDA-induced model	Increased
Coune et al 2013_2	GABA	HPLC	alpha-synuclein model	Decreased
Jerónimo-Santos et al 2015	GABA	HPLC	Model AB25-35	Decreased
Patel et al 2017_1	GABA	Spectroscopy	ABetaPP-PSJ, 15 minutes infusion time	Decreased
Patel et al 2017_2	GABA	Spectroscopy	ABetaPP-PSJ, 90 minutes infusion time,	N.S.
Sharma et al 2018	GABA	HPLC	Rotenone-induced model	Decreased

Tab. 2. Descriptive table of the studies in Figure 05.

Study	Parameters Receptor	Method	Comparisons Controls x models	Results
Gimenez-Llort et al 2010_1	GABA-A	immunohistochemistry	transgenic model, males 3xTg-AD SED	n.s.
Gimenez-Llort et al 2010_2	GABA-A	immunohistochemistry	transgenic model, males 3xTg-AD EXE	Increased
Gimenez-Llort et al 2010_3	GABA-A	immunohistochemistry	transgenic model, females 3xTg-AD SED	n.s.
Gimenez-Llort et al 2010_4	GABA-A	immunohistochemistry	transgenic model, females 3xTg-AD EXE	n.s.
Revilla et al 2014_1	GABA-A	immunohistochemistry	transgenic model, 3xTg-AD SED	Increased
Revilla et al 2014_2	GABA-A	immunohistochemistry	transgenic model 3xTg-AD EXE	Increased

Tab. 3. Descriptive table of the studies in Figure 06.

Study	Parameters	Method	Comparisons	Results
Hardy et al 1987_1	GABA	immunohistochemistry	Controls x patients	decreased
Hardy et al 1987_2	GABA	immunohistochemistry	Controls x patients	decreased
Hardy et al 1987_3	GABA	immunohistochemistry	Controls x patients	decreased
Seidl et al 2001_1	GABA	HPLC	Controls x patients	decreased
Seidl et al 2001_2	GABA	HPLC	Controls x patients	decreased

Seidl et al 2001_3	GABA	HPLC	Controls x patients	decreased
Seidl et al 2001_4	GABA	HPLC	Controls x patients	decreased
Seidl et al 2001_5	GABA	HPLC	Controls x patients	n.s.

Tab. 4. Descriptive table of the studies in Figure 07.

Study	Parameters	Comparisons	Results
	Neurotransmitter	Controls x models	
Ben et al 2019_1	Glutamate	Control and Parkinson model	N.S
Ben et al 2019_2	Glutamate	Control and Parkinson model	n.s.
Ben et al 2019_3	Glutamate	Control and Parkinson model	N.S.
Ben et al 2019_4	Glutamate	Control and Parkinson model	N.S.
Ben et al 2019_5	Glutamate	Control and Parkinson model/coune	N.S.
Coune et al 2013_1	Glutamate	6-OHDA-induced model	Decreased
Coune et al 2013_2	Glutamate	alpha-synuclein model	Decreased
Jerónimo-Santos et al 2015	Glutamate	Model AB25-35	Decreased
Maya et al 2018	Glutamate	Amyotrophic lateral sclerose model	N.S.
Patel et al 2017_1	Glutamate	ABetaPP-PSI model, 15-minute infusion time	Decreased
Patel et al 2017_2	Glutamate	ABetaPP-PSI model, 90-minute brewing time	Increased
Sharma et al 2018	Glutamate	Rotenone-induced model	Increased

Tab. 5. Descriptive table of the studies in Figure 08.

Study	Sample Type Neocortex rodents	Method	Parameters	Age group (months)	Comparisons Controls vs. DA Models	Results
Deng et al 2020	Rats	HPLC	GABA	6	D-galactose and Aβ25–35 induced model	Decreased
Oyetayo et al 2023	Rats	Fluorimetry	GABA	Adults	scopolamine induced model	Decreased
Watanabe et al 2019	Mice	HPLC	GABA	12	Model APP/PS1/Ear2 knockout	N.S.

Tab. 6. Descriptive table of the studies in Figure 9.

Study	Sample Type: Hippocampus rodents	Method	Parameters	Age group (months)	Comparisons Controls vs. DA Models	Results
Deng et al 2020	Rats	HPLC	GABA	6	Model induced with D-galactose and Aβ25–35	Decreased
Jerónimo-Santos et al 2015	Rats	HPLC	GABA	3	Alzheimer's AB25-35 model	Decreased
Kovac et al 2014	Rats	HPLC	GABA	6 a 7	Model SHR72	n.s
Li et al 2017_1	Mice	HPLC	GABA	12	H-TAU Model	Decreased
Li et al 2017_2	Mice	Western Blot	GABA	12	H-TAU Model	n.s
Oyetayo et al 2023	Rats	Fluorimetry	GABA	Adults	scopolamine induced model	Decreased
Patel et al 2017_1	Mice	Spectroscopy	GABA	12	Model ABPP-PS1	Decreased
Watanabe et al 2019_2	Mice	HPLC	GABA	2	modelo APP/PS1/Ear2(-/-)	Decreased

Tab. 7. Descriptive table of the studies in Figure 10.

Study	Sample Type Neocortex rodents	Method	Parameters Receptor	Age group (months)	Comparisons Controls vs. DA Models	Results
Gimenez-Llort et al 2010_1	Mice	immunohistochemistry	GABA-A	6	transgenic model, males 3xTg-AD SED	N.S.
Gimenez-Llort et al 2010_2	Mice	immunohistochemistry	GABA-A	6	transgenic model, males 3xTg-AD EXE	N.S.
Gimenez-Llort et al 2010_3	Mice	immunohistochemistry	GABA-A	6	transgenic model, females 3xTg-AD SED	N.S.
Gimenez-Llort et al 2010_4	Mice	immunohistochemistry	GABA-A	6	transgenic model, females 3xTg-AD EXE	n.s.
Revilla et al 2014_1	Mice	immunohistochemistry	GABA-A	7	modelo transgênico 3xTg-AD SED	Increased
Revilla et al 2014_2	Mice	immunohistochemistry	GABA-A	7	transgenic model 3xTg-AD EXE	Increased

Tab. 8. Descriptive table of the studies in Figure 11.

Study	Sample Type Hippocampus rodents	Method	Parameters Types of Receptors	Age group (months)	Comparisons Controls vs. DA Models	Results
Bazzigaluppi et al 2018_1	Rats	Western Blot	- GABA-A, alpha 1 subunit	8 a 9	Model TgF344-AD	n.s.
Bazzigaluppi et al 2018_2	Rats	Western Blot	GABA-A, Alpha Subunit 5	8 a 9	Model TgF344-AD	n.s.
Bazzigaluppi et al 2018_3	Rats	Western Blot	- GABA-A, delta subunit	8 a 9	Model TgF344-AD	Increased
Li and a 2017_1	Mice	Western Blot	- GABA-A, alpha 1 subunit	12	model htau	n.s.
Li and a 2017_2	Mice	Western Blot	- GABA-A, beta subunit 1	12	model htau	n.s.
Ramos et al 2006_1	Mice	RT-PCR, RNA	- GABA-A, alpha 1 subunit	6	model PS1xAPPtg	n.s.
Ramos et al 2006_2	Mice	RT-PCR, RNA	- GABA-A, alpha 2 subunit	6	PS1xAPP tg model	n.s.
Ramos et al 2006_3	Mice	RT-PCR, RNA	- GABA-A, alpha 5 subunit	6	model PS1xAPPtg	n.s.

Tab. 9. Descriptive table of the studies in Figure 12.

Study	Sample Type: Hippocampus rodents	Method	Parameters Protractor	Age group (months)	Comparisons Controls vs. DA Models	Results
Li et al 2024	Mice	Western Blot	vGAT	5	5XFAD model	N.S.
Mao et al 2024	Mice	Western Blot	vGAT	4	APP model	N.S.

Tab. 10. Descriptive table of the studies in Figure 13.

Study	Sample Type Striatum/ Individuals = rodents	Method	Parameters	Age group (months) n.i. = not informed	Comparisons Controls x PD models	Results
Coune et al 2013_1	Fluting/Stirring	HPLC	GABA	2	6-OHDA-induced model	Increased
Coune et al 2013_2	Fluting/Stirring	HPLC	GABA	2	alpha-synuclein model	Decreased
Fang et al 2021	Fluting/Stirring	HPLC-MS/MS	GABA	n.i.	Rotenone-induced model	Increased
Gwiazda et al 2022	Fluting/Stirring	HPLC	GABA	Adults	6-OHDA-induced model	n.s.
Herrera et al 2016	Fluting/Stirring	HPLC	GABA	Adults	Aminochrome-induced model	n.s.
Kumar et al 2023	Fluting/Stirring	OPA/ME	GABA	n.i.	LPS-induced model	Decreased

Tab. 11. Descriptive table of the studies in Figure 14.

Study	Sample Type PAG rodents	Method	Parameters	Age group	Comparisons Controls x PD models	Results
Zhang et al 2020	PAG/Ratos	Elisa	GABA	Adults	6-OHDA-induced model	Decrease

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Zhuang et al 2016	PAG/Ratos	Elisa	GABA	Adults	6-OHDA-induced model	Decreased

Tab. 12. Descriptive table of the studies in Figure 15.

Study	Sample Type Neocortex post mortem AD Patients	Method	Parameters	Age group (years)	Comparisons Controls vs. AD patients	Results
Hardy et al 1987_1	Neocortex	immunohistochemistry	GABA	65	Occipital cortex	Decreased
Hardy et al 1987_2	Neocortex	immunohistochemistry	GABA	65	frontal cortex	Decreased
Hardy et al 1987_3	Neocortex	immunohistochemistry	GABA	65	temporal cortex	Decreased
Seidl et al 2001_1	Neocortex	HPLC	GABA	61.7±5.4	temporal cortex	Decreased
Seidl et al 2001_2	Neocortex	HPLC	GABA	61.7±5.4	Occipital cortex	Decreased

Tab. 13. Descriptive table of the studies in Figure 16.

Study	Sample Type Neocortex Post mortem PD Patients	Method	Parameters	Age group (years)	Comparisons Controls x PD patients	Results
Firbank et al 2018_1	Neocortex	Magnetic Resonance Spectroscopy (MRS)	GABA	74	Patients without visual hallucination	n.s.
Firbank et al 2018_2	Neocortex	MRS	GABA	74	Patients with visual hallucination	Decreased
Pizzi et al 2022	Neocortex	MRS	GABA	65	Pré-frontal cortex	n.s.
Tuura et al 2018	Neocortex	MRS	GABA	64	Pré-frontal cortex	n.s.
Van Nuland et al 2019_1	Neocortex	MRS	GABA	61	motor cortex	n.s.
Van Nuland et al 2019_2	Neocortex	MRS	GABA	61	Visual cortex	n.s.

Tab. 14. Descriptive table of the studies in Figure 17.

Study	Sample Type Neocortex/ individuals = rodents	Method	Parameters	Age group	Comparisons Controls vs. rodent DA models	Results
Alghamdi et al 2018	Neocortex/Rats	Elisa	Glutamate	3	AlCl ₃ -induced model	Increased
Deng et al 2020	Neocortex/Rats	HPLC	Glutamate	6	D-galactose and Aβ ₂₅₋₃₅ induced model	Increased
Shevtsova et al 2022	Neocortex/Mice	HPLC	Glutamate	3	modelo Tg-2113x	Decreased
Watanabe et al 2019	Neocortex/Mice	HPLC	Glutamate	12	model, APP/PS1/Ear2 knockout	n.s.

Tab. 15. Descriptive table of the studies in Figure 18.

Study	Sample Type Hippocampus/individuals= rodents	Method	Parameters	Age group (months)	Comparisons Control x rodent model	Results
Alghamdi et al 2018_2	Hippocampus/Rats	Elisa	Glutamate	3	AlCl ₃ -induced model	Increased
Deng et al 2020	Hippocampus/Rats	HPLC	Glutamate	6	D-galactose and Aβ ₂₅₋₃₅ induced model	Increased
Hascup et al 2019_1	Hippocampus/Mice	HPLC	Glutamate	2 a 6	modelo ABPP-PS1, DG	Increased
Hascup et al 2019_2	Hippocampus/Mice	HPLC	Glutamate	2 a 6	ABPP-PS1, Ca3 model	n.s.
Hascup et al 2019_3	Hippocampus/Mice	HPLC	Glutamate	2 a 6	ABPP-PS1, Ca1 model	n.s.

Hascup et al 2019_4	Hippocampus/Mice	HPLC	Glutamate	2 a 6	modelo ABPP-PS1, DG	n.s.
Hascup et al 2019_5	Hippocampus/Mice	HPLC	Glutamate	2 a 6	ABPP-PS1, Ca3 model	n.s.
Hascup et al 2019_6	Hippocampus/Mice	HPLC	Glutamate	2 a 6	ABPP-PS1, Ca1 model	n.s.
Jerónimo-Santos et al 2015	Hippocampus/Rats	HPLC	Glutamate	3	Alzheimer's AB25-35 model	Decreased
Li et al 2017	Hippocampus/Mice	HPLC	Glutamate	12	Model htau	n.s.
Patel et al 2017_1	Hippocampus/Mice	Spectroscopy	Glutamate	12	ABetaPP-PS1, 15 minutes infusion time	Decreased
Patel et al 2017_2	Hippocampus/Mice	Spectroscopy	Glutamate	12	ABetaPP-PS1, 90-minute brewing time	Increased
Watanabe et al 2019	Hippocampus/Mice	HPLC	Glutamate	12	Model APP/PS1/Ear2 knockout	Decreased

Tab. 16. Descriptive table of the studies in Figure 19.

Study	Sample Type Striated rodents	Method	Parameters	Age group (months)	Comparisons Control x Model of DP Rodents	Results
Coune et al 2013_1	Rats	HPLC	Glutamate	2	6-OHDA-induced model	Decreased
Coune et al 2013_2	Rats	HPLC	Glutamate	2	alpha-synuclein model	Decreased
Herrera et al 2016	Rats	HPLC	Glutamate	Adults	Aminochrome Model	N.S.
Li et al 2019_2	Rats	HPLC	Glutamate	Adults	6-OHDA-induced model	n.s.
Mercatelli et al 2019_1	Mice	HPLC	Glutamate	3	Model KD	n.s.
Mercatelli et al 2019_2	Mice	HPLC	Glutamate	3	LRRK2 MODEL WITH	n.s.
Raj et al 2022	Rats	HPLC	Glutamate	Adults	tramadol-induced model	Increased
Sharma et al 2016	Rats	HPLC	Glutamate	4 a 5	Rotenone-induced model	Increased
Sharma et al 2018	Rats	HPLC	Glutamate	Adults	Rotenone-induced model	Increased
Singh et al 2018	Rats	HPLC	Glutamate	Adults	6-OHDA-induced model	Increased
Wang et al 2015	Mice	HPLC	Glutamate	4	MPTP-induced model	Decreased
Yelkenli et al 2016	Rats	HPLC	Glutamate	Adults	6-OHDA-induced model	N.S.

Tab. 17. Descriptive table of the studies in Figure 20.

Study	Sample Type Neocortex = synaptosome	Method	Parameters	Age group (months)	Brain area Control x DP model	Comparisons	Results
Angelova et al 2020	Mice	HPLC	Glutamate	Adult	Neocortex	Model SNCAx3	N.S.
Mercatelli et al 2019_1	Mice	HPLC	Glutamate	3	Neocortex	Model KD	N.S.
Mercatelli et al 2019_2	Mice	HPLC	Glutamate	3	Neocortex	Comparison of the control group with the LRRK2 KO model	No difference was observed between the groups