

**Supplementary Material S2.** In vivo studies in animal models of depression and mania (n=19).

<b>Author, year, country</b>	<b>Species, sample size (N), sex (M/F), depression/manic model</b>	<b>Drug tested</b>	<b>Procedure</b>	<b>Result: (1) behavioral test; (2) adverse effects; (3) inflammatory markers</b>
Myint et al., 2007, Netherlands [50]	Sprague Dawley rats, N=8/group, M, OBX rats	CEL 10 mg/kg/day p.o. 2 weeks	OFT, ET IL-1 $\beta$ , TNF- $\alpha$ , IL-10, TGF- $\beta$ <sub>1</sub> , corticosterone	1) CEL reversed hyperactivity in OBX-rats in OFT and ET 3) CEL reversed inflammatory activity in brain: OBX + CEL group was lower IL-1 $\beta$ and IL-10 in hypothalamus, lower TNF- $\alpha$ and IL-1 $\beta$ and higher IL-10 in prefrontal cortex compared to OBX group; cytokines and corticosterone were not changed in blood
Guo et al., 2009, China [51]	Sprague Dawley rats, N=10/group, M, CUS	CEL 16/8/2 mg/kg/day p.o. 3 weeks CEL 16 mg/kg p.o. single dose	SPT, OFT PGE2	1) Chronic CEL reversed reduced of sucrose solution intake and sucrose preference in SPT and attenuated anxious behavior in OFT 3) Reduced PGE2 level in brain was observed in chronic CEL treatment and single dose
Song et al., 2009, Canada [65]	Sprague Dawley rats, N=10/group, M, OBX rats	CEL 5 mg/kg/day i.p. 4 weeks	OFT IL-1 $\beta$ , PGE2, corticosterone, mRNA NGF expression, PGE2	1) CEL significantly attenuated depressive-like behavior (OFT) in OBX rats 3) CEL reduced IL-1 $\beta$ and PGE2 concentration in the serum OBX rats and attenuated PGE2 concentration in hypothalamus; CEL treatment significantly blocked the elevation of serum corticosterone levels in OBX rats; CEL attenuated reduction of NGF expression in hippocampus OBX rats
Prakash et al., 2013, India [52]	Wistar rats, N=6/group, M, LPS treated rats	CEL 10/50 mg/kg/day p.o. 1 week	FST, OFT, LA	1) CEL pretreatment attenuated LPS-induced behavioral changes in OFT, FST, LA
Maciel et al., 2013, Brazil [53]	Swiss mice, N=4-8/group, M, CFA model	CEL 3/15/30 mg/kg p.o. 1 week	TST, FST IL-1 $\beta$ , BDNF	1) CEL (15 and 30mg) decreased depressive-like behavior in TST; CEL + bupropion (both 3 mg) decreased depressive-like behaviors in FST, TST 3) CEL (30mg) and CEL + bupropion (each 3mg) reversed increase of IL-1 $\beta$ in whole brain; no significant change in hippocampus and cortex; CEL not interfered with BDNF levels
Kurhe et al., 2014, India [54]	Swiss mice, N=6/group, M, HFD	CEL 15 mg/kg/day p.o. 4 weeks	SPT, FST, TST, EPM, LA	1) CEL reversed depressive-like behaviors in SPT, FST, TST, EPM; LA was not affected in HFD depression model

Santiago et al., 2014, Brazil [55]	Wistar rats, N=8-15/group, M, CMS	CEL 10 mg/kg/day p.o. 3 weeks	SPT	1) CEL reversed depressive-like behaviors in SPT in CMS model of depression
Costa-Nunes et al., 2015, Portugal [56]	C57BL/6N mice, N=10/group, M, Stress-induced anhedonia	CEL 7/15/30/50 mg/kg/day p.o. 4 weeks	TST, FST	1) CEL reversed depressive-like behaviors in TST. CEL did not affect behavioral changes in FST
Fischer et al., 2015, Denmark [57]	Sprague Dawley rats, N=10/group, M, IFN $\alpha$ -induced depression model	CEL 16 mg/kg/day p.o. 1 week	FST, OFT Tryptophan-kynurenine pathway metabolites	1) CEL showed a trend towards decreasing the IFN $\alpha$ -induced depression-like behavior in FST. IFN $\alpha$ did not change locomotor activity in OFT 3) There was a trend for a down-regulation of kynurenic acid in all treatment groups in hypothalamus, although this did not reach statistical significance
Morgese et al., 2018, Italy [58]	Wistar rats, N=8/group, M, Amyloid $\beta$ -induced model of depression	CEL 15 mg/kg/day s.c. 8 days	FST	1) CEL prevented amyloid $\beta$ -induced depressive behaviors in FST
Alboni et al., 2018, Italy [66]	Sprague Dowley rats, N=5-7/group, M, CED	CEL 5 mg/kg/day i.g. 1 week	Escape test	1) CEL + fluoxetine (5 mg/kg/day i.p.) partially reversed stressed-induced escape deficit
Song et al., 2019, China [59]	Wistar rats, N=6-18/group, M, CMS, LPS-induced model	CEL 20 mg/kg/day i.p. 5 weeks	SPT, FST PGE2, IL-1 $\beta$ , TNF $\alpha$ , IFN $\gamma$ , glial activation	1) CEL reduced depressive-like behaviors in SPT, FST in two depression models 3) CEL decreased PGE2 in two depression models; CEL prevented glial activation and reversed mRNA expression levels of IL-1 $\beta$ , TNF $\alpha$ , IFN $\gamma$ in hippocampal DG regions
de Munter et al., 2020, Netherlands [61]	FUS[1-359]-tg mouse, N=7-14/group, M	CEL 30 mg/kg/day p.o. 3 weeks	TST, IL-1 $\beta$ , microgliosis	1) CEL reduced despair in FUS[1-359]-tg mice 3) CEL normalized IL-1 $\beta$ level and microgliosis in the brain FUS[1-359]-tg mice
Mesripour et al., 2020, Iran [60]	Albino mice, N=6/group, M, IFN $\alpha$ induced depression model	CEL 25, 50 mg/kg/day i.p. 6 days	LA, FST, SPT,	1) Acute CEL (single dose 50 mg/kg) significantly blunted IFN $\alpha$ -induced depression-like behavior in FST, SPT. Sub-acute CEL (six days 25 mg/kg) blunted IFN $\alpha$ -induced depression-like behavior in FST
Feng et al., 2020 [62]	C57BL/6 mice, N=3-8/group, M, Chronic mild stress	Celecoxib 10 mg/kg/day i.p. 4 weeks	SPT, FST glial activation	1) CEL ameliorated depressive-like behaviors in SPT, FST 3) CEL normalized glial activation in dentate gyrus (DG) in CMS and attenuated glial activation in LPS-induced model

Mesripour et al., 2021, Iran [63]	NMRI mice, N=6/group, M, CYA-induced model	Celecoxib 25/50 mg/kg/day i.p. 3 days	LA, FST, SPT	1) The co-administration CEL with CYA reduced depression-like behaviors in FST and SPT; not changed LA
Strelakova et al., 2022, Multicenter [64]	C57BL/6N mice, N=13-16/group, M, Chronic mild stress	Celecoxib 30 mg/kg/day i.p. 5 weeks	SPT, FST, FCP	1) CEL prevented development of depressive-like behavior (SPT, FST, FCP) in CMS model
Valvassori et al., 2019, Brazil [68]	Wistar rats, N=12/group, M, dextro-amphetamine (d-AMPH)-induced model of mania	Celecoxib 20 mg/kg/day p.o 1 week	OFT	1) Co-administration of celecoxib with lithium (24 mg/kg/day i.p.) abrogated the effect of d-AMPH; this effect was not observed separately
Valvassori et al., 2019, Brazil [67]	Wistar rats, N=10/group, M, d-AMPH-induced model of mania	Celecoxib 20 mg/kg/day p.o. 1 week	OFT, IL-1 $\beta$ , IL-4, IL-10, TNF- $\alpha$	1) Co-administration Li + CEL abrogated the effect of d-AMPH in OFT; this effect was not observed separately 3) Co-administration CEL and lithium (24 mg/kg/day) reversed increased IL-4, IL-10, TNF- $\alpha$ in the serum, frontal cortex, striatum; Treatment CEL per se decreased only IL-10 level in the serum of animal, IL-4 in frontal cortex, TNF- $\alpha$ in striatum

OFT – open field test, ET – emergency test, FST – forced swimming test, LA – locomotor activity, TST – tail suspension test, CUS – chronic unpredictable stress, SPT – sucrose preference test, EPM – elevated plus maze, FCP – fear conditioning paradigm, CMS – chronic mild stress, CED – chronic escape deficit, OBX – olfactory bulbectomized, CFA – Complete Freund Adjuvant, HFD – high fat diet, FUS – fused in sarcoma protein, TNF $\alpha$  – tumor necrosis factor  $\alpha$ , TGF- $\beta$  – transforming growth factor  $\beta$ , PGE2 – prostaglandin E2, NGF – nerve growth factor, LPS – lipopolysaccharide, BDNF – brain-derived neurotrophic factor, IFN $\alpha$  – interferon  $\alpha$ , IFN $\gamma$  – interferon  $\gamma$ , DG – dentate gyrus, CYA – Cyclosporine A, d-AMPH – dextroamphetamine, Li – lithium, IL – interleukin, CEL – celecoxib, CYA – cyclosporine A, FCP – fear conditioning paradigm s.c. – subcutaneously, p.o. – per os, i.p. – intraperitoneal, i.g. – intragastric