

**Supplementary Table 1: Synaptic substrates of CaMKII**

Sl. No.	Name of the substrate	CaMKII phosphorylation site(s)	Functional relevance	Reference
1	CaMKII	Thr <sup>286/287</sup>	LTP	Lisman and Zhabotinsky, 2001
2	CaMKII	Thr <sup>305/306</sup>	Inhibits CaMKII function	Vest et al., 2007
3	NMDAR subunit GluN2B	Ser <sup>1303</sup>	Regulates the interaction with CaMKII	McGlade-McCulloh et al., 1993
4	NMDAR subunit GluN2A	Ser <sup>1291</sup>	NMDAR current potentiation	Chen et al., 2007
5	AMPA subunit GluA1	Ser <sup>831</sup>	Enhances AMPA channel conductance; LTP	Derkach et al., 1999
6	PSD95; PDZ1 domain	Ser <sup>73</sup>	Facilitates dissociation of GluN2A from PSD95	Gardoni et al., 2006
7	Synapse-associated protein (SAP) 97	Ser <sup>39</sup>	GluA1 redistribution in AMPAR, SAP97 trafficking to spines	Mauceri et al., 2004
8	SAP97	Ser <sup>232</sup>	Modulates binding of other proteins, Disrupts interaction with GluN2A	Gardoni et al., 2003; Nikandrova et al, 2010
9	TARP $\gamma$ -8	Ser <sup>277</sup> , Ser <sup>281</sup>	Role in synaptic plasticity; Enhances synaptic insertion of AMPAR	Park et al., 2016
10	Arc	Ser <sup>260</sup>	Regulates oligomerization of Arc; Synaptic plasticity	Zhang et al., 2019
11	Guanylate kinase-associated protein (GKAP)	Ser <sup>54</sup>	Induces poly ubiquitination of GKAP	Shin et al., 2012
12	Densin-180	Ser <sup>94</sup> , Ser <sup>134</sup>	Regulates binding with other proteins in PSD95	Strack et al., 2000b
13	SynGAP synaptic Ras/Rap	Ser <sup>1123</sup> , Ser <sup>750/751/756</sup> , Ser <sup>764/765</sup> , Ser <sup>1058</sup>	Increases RasGTPase activity	Oh et al., 2004

	GTPase-activating protein			
14	Vimentin	Ser <sup>82</sup>	Synaptic reorganization	Inagaki et al., 1997
15	Stargazin (TARP $\gamma$ -2)	Ser <sup>9</sup>	Stops the diffusion of surface AMPARs at synaptic sites; Promotes AMPAfication	Opazo et al., 2010
16	Nav1.6	Ser <sup>561</sup> and Ser <sup>641</sup> /Thr <sup>642</sup>	Allows Na <sup>+</sup> influx and helps in neuronal excitability	Zybura et al., 2020
17	AKAP79/150	Thr <sup>87</sup> , Ser <sup>92</sup>	Spine shrinkage; LTD	Woolfrey et al., 2018
18	Kalirin 7	Thr <sup>95</sup>	Activation of PKA; AMPAfication; Spine enlargement	Xie et al., 2007