

新規シグナル分子によるグリアニューロン相互回路網構築の可能性探究

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Research Abstract 本研究では、脳内神経情報伝達物質が骨関節系細胞において細胞間情報伝達に利用される事実に基づいて、骨関節系細胞における情報分子群について脳内ニューロンおよびグリア細胞における機能的発現の可能性を探索した。特に、Runt related factor-2(Runx2)は間葉系幹細胞から骨芽細胞への分化と成熟過程に必須の転写制御因子であるが、中枢神経系における発現解析は全く行われていない。したがって本研究ではRunx2に焦点を当てて、その中枢神経系における機能的発現の可能性を追究するとともに、一過性脳虚血時における病態生理学的役割について検討した。RT-PCR法による解析の結果、ラット大脳皮質由来培養アストログリア細胞およびC6グリオーマ細胞ともにRunx2のmRNA発現が認められた。C6グリオーマ細胞にRunx2の発現ベクターを導入すると、Matrix metalloproteinase-13(MMP13)のmRNA発現量が有意に上昇することが明らかとなった。次いで、中大脳動脈結紮(MCAO)ラット脳におけるMMP13発現を検討した結果、MCAO負荷により梗塞側でMMP13のmRNA発現量の著明な上昇が認められた。以上の結果より、Runx2は中枢神経系内でも特にアストログリア細胞に強く発現するだけでなく、MMP13の発現制御を介して脳虚血病態出現に何らかの関与を示す可能性が示唆される。

Report (2 results)

2007 Annual Research Report

2006 Annual Research Report

Research Products (33 results)

All 2008 2007 2006 Other				
All	Journal Article	Remarks	Patent(Industrial Property Rights)	
[Journal Article] Theanine, an ingredient of green tea, inhibits[3H]glutamine transport in neurons and astroglia in rat brain.				2008 ▼
[Journal Article] Upregulation of Myo6 expression after traumatic stress in mouse hippocampus.				2008 ▼
[Journal Article] Social isolation rearing-induced impairment of the hippocampal neurogenesis is associated with deficits in spatial memory and emotion-related behaviors in juvenile mice.				2008 ▼
[Journal Article] Transient suppression of progenitor cell proliferation through NMDA receptors in hippocampal dentate gyrus of mice with traumatic stress experience.				2008 ▼
[Journal Article] Modulation of cellular proliferation and differentiation through GABAB receptors expressed by undifferentiated neural progenitor cells isolated from fetal mouse brain.				2008 ▼
[Journal Article] Promotion of neuronal differentiation through activation of NMDA receptors transiently expressed by undifferentiated neural progenitor cells in fetal rat neocortex.				2008 ▼
[Journal Article] Insensitivity to glutamate neurotoxicity mediated by N-methyl-D-aspartate receptors in association with delayed mitochondrialmembrane potential disruption in cultured ratcortical neurons.				2008 ▼
[Journal Article] Upregulation of ciliary neurotrophic factor expression by GABAA receptors in undifferentiated neural progenitors of fetal mouse brain.				2008 ▼

[Journal Article] Group III metabotropic glutamate receptor activation suppresses self-replication of undifferentiated neocortical progenitor cells.	2008	▼
[Journal Article] Differential regulation by glycine of cellular maturation in chondrocytes and osteoblasts	2008	▼
[Journal Article] Acidic amino acid tag enhances response to enzyme replacement in mucopolysaccharidosis type VII mice.	2008	▼
[Journal Article] Nuclear factor E2 p45-related factor 2 negatively regulates chondrogenesis.	2007	▼
[Journal Article] Oral administration of phenolic antidiarrheic ingredients prevents ovariectomy-induced bone loss.	2007	▼
[Journal Article] Methoxyflavones protect cells against endoplasmic reticulum (ER) stress and neurotoxin.	2007	▼
[Journal Article] Activation of GABAA receptors facilitates astroglial differentiation induced by ciliary neurotrophic factor in neural progenitors isolated from fetal rat brain.	2007	▼
[Journal Article] Glutamate suppresses osteoclastogenesis through the cystine/glutamate antiporter	2007	▼
[Journal Article] Upregulation of the glutamine transporter through transactivation mediated by cAMP/protein kinase A signals toward exacerbation of vulnerability to oxidative stress in rat neocortical astrocytes.	2007	▼
[Journal Article] Activator protein-1 responsive to the group II metabotropic glutamate receptor subtype in association with intracellular calcium in cultured rat cortical neurons.	2007	▼
[Journal Article] Glutamate is a determinant of cellular proliferation through modulation of nuclear factor E2 p45-related factor-2 expression in osteoblastic MC3T3-E1 cells.	2007	▼
[Journal Article] Cytoprotective properties of phenolic antidiarrheic ingredients in cultured astrocytes and neurons of rat brains.	2007	▼
[Journal Article] Decreased level of mitochondrial RNA by glutamate in cultured cortical neurons.	2007	▼
[Journal Article] Suppression by glutamate of proliferative activity through glutathione depletion mediated by cystine/glutamate antiporter in mesenchymal C3H10T1/2 stem cells.	2007	▼
[Journal Article] Osteoblast protects osteoclast devoid of sodium-dependent vitamin C transporters from oxidative cytotoxicity of ascorbic acid.	2007	▼
[Journal Article] Tex261 modulates the excitotoxic cell death induced by N-methyl-D-aspartate (NMDA) receptor activation.	2007	▼
[Journal Article] Neural circuits containing pallidotegmental GABAergic neurons are involved in the prepulse inhibition of the startle reflex in mice.	2007	▼
[Journal Article] Serine racemase suppresses chondrogenic differentiation in cartilage in a Sox9-dependent manner.	2007	▼
[Journal Article] Upregulation of the glutamine transporter through transactivation mediated by cAMP/protein kinase A signals toward exacerbation of vulnerability to oxidative stress in rat neocortical astrocytes.	2007	▼
[Journal Article] Functional expression of a glutamine transporter responsive to downregulation by lipopolysaccharide through reduced promoter activity in cultured rat neocortical astrocytes.	2006	▼
[Remarks]		▼
[Patent(Industrial Property Rights)] NMDA受容体阻害剤	2007	▼
[Patent(Industrial Property Rights)] 心的外傷後ストレス障害の治療及び予防剤のスクリーニング方法	2007	▼
[Patent(Industrial Property Rights)] 骨代謝性疾患治療薬スクリーニングシステムの開発	2006	▼
[Patent(Industrial Property Rights)] NMDA受容体阻害剤	2006	▼

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