

浙江省科学技术奖公示信息表（单位提名）

提名奖项：科学技术进步奖

成果名称	多模态 fMRI 探讨 AD 抑郁症状的脑机制以其应用
提名等级	二等奖
提名书 相关内容	<p>(1) Guo Z, Liu X, Jia X, Hou H, Cao Y, Wei F, Li J, Chen X, Zhang Y, Shen Y, Wei L, Xu L, Chen W. Regional Coherence Changes in Alzheimer's Disease Patients with Depressive Symptoms: A Resting-State Functional MRI Study. <i>J Alzheimers Dis.</i> 2015; 48(3): 603-611.</p> <p>(2) Guo Z, Zhang J, Liu X, Hou H, Cao Y, Wei F, Li J, Chen X, Shen Y, Chen W. Neurometabolic characteristics in the anterior cingulate gyrus of Alzheimer's disease patients with depression: a (1)H magnetic resonance spectroscopy study. <i>BMC Psychiatry.</i> 2015; 15(1): 306-313.</p> <p>(3) Guo Z, Liu X*, Hou H, Wei F, Chen X, Shen Y, Chen W*. (1)H-MRS asymmetry changes in the anterior and posterior cingulate gyrus in patients with mild cognitive impairment and mild Alzheimer's disease. <i>Compr Psychiatry.</i> 2016; 69: 179-85.</p> <p>(4) Guo Z, Liu X, Hou H, Wei F, Liu J, Chen X. Abnormal degree centrality in Alzheimer's disease patients with depression: A resting-state functional magnetic resonance imaging study. <i>Exp Gerontol.</i> 2016; 15(79): 61-6.</p> <p>(5) Liu XZ#, Chen W#, Hou HT, Chen XL, Zhang JT, Liu J, Guo ZW, Bai GH. Decreased functional connectivity between the dorsal anterior cingulate cortex and lingual gyrus in Alzheimer's disease patients with depression. <i>Behavioural Brain Research.</i> 2017; 326:</p>

132-138.

(6) Liu XZ#, Guo ZW#, Ding YP, Li JP, Wang G, Hou HT, Chen XL, Yu EY. Abnormal baseline brain activity in Alzheimer's disease patients with depression: a resting-state functional magnetic resonance imaging study. *Neuroradiology*. 2017; 59(7): 709-714.

(7) Guo Z, Liu X, Li J, Wei F, Hou H, Chen X, Li X, Chen W. Fractional amplitude of low-frequency fluctuations is disrupted in Alzheimer's disease with depression. *Clin Neurophysiol*. 2017; 128(7): 1344-1349.

(8) Guo ZW, Liu XZ, Xu SQ, Hou HT, Chen XL, Zhang ZZ, Chen W. Abnormal changes in functional connectivity between the amygdala and frontal regions are associated with depression in Alzheimer's disease. *Neuroradiology*. 2018; 60(12): 1315-1322.

(9) Liu XZ, Chen W, Tu YH, Hou HT, Huang XY, Chen XL, Guo ZW, Bai GH, Chen W. The Abnormal Functional Connectivity between the Hypothalamus and the Temporal Gyrus Underlying Depression in Alzheimer's Disease Patients. *Frontiers in Aging Neuroscience*. 2018; 10: 37.

(10) Liu XZ, Chen JZ, Shen BL, Wang G, Li JP, Hou HT, Chen XL, Guo ZW, Mao CW. Altered Intrinsic Coupling between Functional Connectivity Density and Amplitude of Low-Frequency Fluctuation in Mild Cognitive Impairment with Depressive Symptoms. *Neural Plasticity*. 2018; 2018: Article ID 1672708.

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提名单位	温州市人民政府
提名意见	<p>本项目通过多模态功能磁共振成像技术，包括静息态功能磁共振成像（R-fMRI）和弥散张量成像（DTI），研究阿尔茨海默病（AD）患者抑郁症状的脑自发活动和皮质-纹状体-丘脑-皮质（CSTC）环路的脑功能机制。</p> <p>经过伴有抑郁的 AD 患者和不伴有抑郁的 AD 患者多模态脑功能数据分析，R-fMRI 分析结果显示：伴抑郁症状 AD 患者在基底核和中央后回存在脑自发活动异常，在皮质-纹状体-丘脑-皮质（CSTC）环路存在脑网络异常，包括杏仁核-前额叶神经网络，背侧前扣带-枕叶神经网络；DTI 分析结果显示：伴抑郁症状 AD 患者左侧放射冠白质完整性降低。研究结果揭示了 AD 患者抑郁症状的脑活动异常脑区和 CSTC 环路的神经病理机制，提示伴有抑郁症状的 AD 患者可能是 AD 疾病谱的一个亚型，对于 AD 分层早期诊断和精细化药物干预具有重要指导意义。</p> <p>该技术方法已经在多家单位推广使用，发表论文 18 篇，其中 SCI 论文 16 篇，中华系列杂志 1 篇，国内核心期刊 1 篇。并举办 3 次技术推广培训班，具有较大的科学价值和社会效益。</p> <p>提名该成果为浙江省科学技术进步奖 二 等奖。</p>