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• 計畫英文名稱	The Potential Roles of Oxidized Low-Density Lipoprotein in Regulation of Dendritic Cell Adhesion (III)
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• 中文關鍵字	--
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• 中文摘要	氧化態低密度脂蛋白(oxidized low-density lipoprotein, oxLDL)爲一種含有脂質的中介物質，可參與發炎反應的調控，其可直接影響免疫細胞的活化如單核球、淋巴球等，進而調節先天(innate)及具專一性(specific)的免疫反應。在本實驗將針對氧化態低密度脂蛋白對一種最有效的抗原呈現細胞-樹突狀細胞(dendritic cell)的免疫調節功能做一討論。在非疾病狀態下，樹突狀細胞一般發現於動脈血管之內皮下層，且細胞數目非常稀少，然而當粥狀動脈硬化病灶(atherosclerotic lesion)形成時，樹突狀細胞的數目大量上升，而在發炎浸潤的區域，超過90%的樹突狀細胞與 T 淋巴細胞共存。在粥狀硬化形成時(atherogenesis)，在局部微細環境的刺激下，單核球能穿越內皮細胞的障壁，而分化爲巨噬細胞(macrophages)或樹突狀細胞，在此過程中氧化態低密度脂蛋白可能扮演了單核球分化爲成熟樹突狀細胞的催化角色。在體外實驗發現，氧化態低密度脂蛋白導致了樹突狀細胞間的聚集，與粥狀動脈硬化病灶發展的極早期所觀察的現象一致。之前研究發現，氧化態低密度脂蛋白在樹突狀細胞成熟過程中，能促進協同刺激分子(costimulatorymolecules)的表現，包括 CD86、HLA-DQ 及 CD40，這些分子參與了樹突狀細胞刺激 T 淋巴細胞的作用，然而關於氧化態低密度脂蛋白如何活化樹突狀細胞的功能，所知仍有限。爲了了解在中風狀態下，組成腦血管障壁(blood-brain barrier)之內皮細胞所造成的發炎反應。爲了解中風過程中樹突狀細胞參與發炎反應的重要性，本計劃將爲首次觀察單核球分化爲樹突狀細胞過程中，氧化態低密度脂蛋白是否影響樹突狀細胞的細胞支架， 而影響與腦血管內皮細胞(cerebralendothelial cell)的交互作用；進而分析氧化態低密度脂蛋白是否藉著調節樹突狀細胞表面的黏附分子(adhesion molecules)而影響樹突狀細胞黏附至腦血管內皮細胞的功能，在本實驗中將深入討論。
• 英文摘要	Oxidized low-density lipoprotein (oxLDL) is a kind of mediator containing lipids and contributes to regulate the inflammatory response. OxLDL

can modulate immune responses by controlling the activation of immune competent cells such as monocytes and lymphocytes. Since dendritic cells (DC) are the most potent professional antigen-presenting cells, we will focus on analyzing the role of oxLDL stimulation in this proposal. Dendritic cells can be found under the endothelial layer of artery with very few cell number in normal condition, however, during the development of atherosclerotic lesions, it is characterized by the presence of large amounts of immune competent cells including T-cells and dendritic cells. Dendritic cell interactions with T-cells might be responsible for T-cell activation in atherogenesis. In the microenvironment of atherogenesis, monocytes exit blood and enter tissues, where they can cross the endothelium and differentiate into macrophages or dendritic cells (DC) under the stimulation of. OxLDL. Moreover, in vitro experiment has revealed the ability of OxLDL to enhance DC clustering, correlating with the observation that DCs accumulate in the early stage of atherosclerotic lesion development. In previous observation, oxLDL can trigger the expression of costimulatory molecules such as CD86, HLA-DQ and CD40 and get involved in the stimulation of allogeneic T cells by dendritic cells. However, the knowledge how oxLDL stimulate dendritic cells still limited. To get insight to the role of dendritic cells in the inflammation response of stroke, we will be the first to dissect the mechanism of the interaction of dendritic cells with cerebral endothelial cells under oxLDL stimulation. This proposal includes three specific aims. First, we will monitor the changes of cytoskeletal structure on monocyte-derived dendritic cells upon oxLDL stimulation, and the effects of oxLDL in the interactions of dendritic cells with cerebral endothelial cells. Second, we will investigate whether important adhesion molecules on dendritic cell are regulated by oxLDL stimulation, and identify the significance of adhesion molecules in the functional interaction of dendritic cells with cerebral endothelial cells.