GNAS、Gi 和 Gq 蛋白經由 Huangqi、Hemin 和 HMBA 誘導 K562 細胞分化中所扮演的角色

涂慧珠、李泰林

E-mail: 9511221@mail.dyu.edu.tw

摘 要

異三元體鳥糞嘌呤核酸結合蛋白(Heterotrimeric guanine nucleotide binding proteins, G proein)，位於細胞雙層膜內部，負責接收膜上受體(receptor)活化之訊號，並活化作用體(effector)，將訊號傳遞(signal transduction)至下游，而G蛋白為訊號傳遞路徑之樞紐，於細胞生長、分化(differentiation)及發育(development)上極具重要性。而G蛋白是由α、β和γ次單元(subunit)組合而成，目前共發現27種α次單元、5種β次單元以及14種γ次單元，G蛋白α次單元具有GTPase活性，能夠與GTP結合並釋放GDP，共可分為四大家族：Gs、Gi/o、Gq/11和G12/13。本研究選用人類慢性骨髓性白血病細胞株(chronic myeloid leukemia cell line, CML)K562細胞作為細胞模式，利用黃耆(Huangqi)、Hemin及HMBA誘導細胞進行分化，以合成β-球蛋白(globin)或γ-球蛋白作為分析指標。利用退化性引子擴增G蛋白，以觀察誘導過程中不同G蛋白之表現變化，從中共選殖到四種基因為GNAS isoform(GNASL和GNASS)、Gαi2、G11 pseudo gene。於誘導後表現不盡相同，共歸納出三點：⑴經黃耆誘導後可增加GNASL並同時抑制GNASS之表現量，Hemin和HMBA則皆無特別明顯之變化。⑵Gαi2於誘導後皆有較明顯之表現。⑶本研究所選殖之G11 pseudo gene，經由限制酵素XhoI剪切後，發現主要表現於經黃耆誘導後之K562細胞當中。以上不同之G蛋白其訊號傳遞調控機制尚未明瞭，須更進一步探討，尤其中藥黃耆對於血液疾病之治療具有極大助益，若能完全了解黃耆誘導分化機制，或許患者可藉此得到治癒或減緩病情之機會。

關鍵詞 : G蛋白 ; 黃耆

目錄

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