Orphan G Protein-Coupled Receptors, GPCR109B and GPCR43, Play Different Roles In Chemical Induced K562 Hum

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ABSTRACT

G protein-coupled receptors, GPCRs, widely exist as a protein family in the human genome, and are the main signal transduction media. When a GPCR is binding with its non- or specifitic ligand, it can stimulate, also, scale up the signal. After the signal transducted to down stream, the cascaded bioeffects are resulted. Lot of diseases are resulted from the malfunctions or lost of functions of GPCRs. Currently, the understands of the GPCRs are still poor, these result in the un-wide application. If we can connect receptors with their specific ligands, we may open the gate in the application of new medicine or target therapy. G proteins are importment media of the celleular signal cascades, they accept primary messages from the GPCR, and transfer to secondary messages produced, subsequently deliver to down stream target. In this thesis, the possible down-stream targets of two GPCRs are studied. From these results, we may provide information to find the candidate of leukemia or anemia disease therapies. Our preliminary results show when overexpression of GPCR109B and accompanied with 6-amino-nicotinate admiseration, the ligand of GPCR109B. PDGF, expression levels have strikingly increased. However overexpression of GPCR43 represses the expression of PDGF. The expession of TESC has no difference at two days after GPCR43 or GPCR1109B overexpression. However, when extend the cell incubation period to 6 days, Vimentin administration shows significant increase the expression level of GPCR109B, and TESC increase the expression level of GPCR43. In combination with the results of Real-time PCR and cell mophotype, we suggest that the GPCR109B and GPCR43 pathways are different, expression of GPCR43 may lead K562 leukemia to differentiate into megakaryocytes, and expression of GPCR109B may lead to the macrophages.

Keywords : G protein ; Ligand ; Target therapy ; macrophage ; megakaryocyte

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