Involvement of LPA Receptor 3 in LPA-induced BGC-803 Cell Migration

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Abstract

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Introduction

Lysophosphatidic acid (LPA), a bioactive phospholipid with diverse physiological actions involved in triggering tumor cell invasion and metastasis, as well as malignant cell growth. In recent years, also found that, LPA as an intercellular messenger, could lead to a very wide range of biological effects, and its significant biological effects including the promotion of cell proliferation, promote platelet aggregation, aggregation and smooth muscle cells involved in tumor cell infiltration (Damirin et al., 2007; Komachi et al., 2009). Lysophosphatidic acid (LPA) is a bioactive phospholipid mediator, which elicits a variety of biological functions mainly, through G-protein coupled receptors (Shida et al., 2003; Aoki et al., 2002). Lysophosphatidic acid acts as an extracellular signaling molecule by binding to and activating at least eight known G-protein coupled receptors (GPCRs): LPA1-LPA8 (Noguchi et al., 2009; Komachi et al., 2009). The biological roles of LPA are diverse and include developmental, physiological, and pathophysiological effects (Contos et al., 2000). This diversity is mediated by broad and overlapping expression patterns and multiple downstream signaling pathways activated by cognate LPA receptors (Bandoh et al., 1999; Hama & Aoki, 2010). LPA receptors through different types of LPA showed a lot of biological activity, including the mobilization of Ca^{2+}, changes of cAMP accumulation in actin rearrangement and combined changes in cell...