

Beta 2 adrenergic receptor is a novel regulator of pro-inflammatory response in diabetes

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Activation of monocytes and macrophages has been shown to be increased in diabetes and correlated with the onset and progression of micro and macrovascular complications. The present study is designed to identify drugs with potential for use in targeting macrophage activation associated with diabetic vascular complications. We established a cell-based assay to assess macrophage activation and screened for anti-inflammatory effect in a 1,040 compound library of the US Food and Drug Administration (FDA)-approved drugs obtained from the National Institutes of Health (NIH). Beta2 adrenergic receptor (β 2AR) agonists were discovered to have considerable anti-inflammatory effects in primary rat bone marrow (BM)-derived macrophages (BMMs) and these effects were further confirmed using experimental diabetic animal models.