/10/2023 Article Revised on 16/11/2023 Article Accepted on 06/12/2023 INTRODUCTION Prostaglandins (PG) is the generic name for a group of closely related, cyclic, oxygenated 20 C–atom containing unsaturated fatty acids. These are considered to be derived from a hypothetical parent acid called prostanoic acid which is a 20 C–atom containing fatty acid with a five–membered cyclopentane ring. [1–3] PG is not just one substance, but a whole family of compounds (PGA, B, C, D, E and F) and are formed in most of the tissues . [4] Prostaglandin was first isolated from seminal fluid present in the prostate gland, in 1935 by the Swedish physiologist Ulf von Euler[5] and independently by the Irish – English physiologist Maurice Walter Goldblatt (1895 –1967) and hence the name prostaglandins was given to those compounds which is a misnomer. [6–8] The inflammatory mediators derived from the membrane phospholipids are called "eicosanoids", which include PGs, thromboxanes, leukotrienes and platelet–activating factor (PAF). The eicosanoids are derived from arachidonic acid which is also called eicosa tetraenoic acid . [9] It is a 20 C–atom containing unsaturated fatty acid having four double bonds (eicosa 20 C–atom; tetraenoic 4 double bonds). The term prostanoids includes only PGs and thromboxanes. [10,11] NOMENCLATURE The nomenclature of eicosanoids (particularly of PGs) is a bit confusing. These are the derivatives of arachidonic acid. All prostaglandins have a cyclopentane ring with a double bond between C–13 and C–14 and an OH group at C–15. The subscript "2" denotes that the PG has a total number of two double bonds in the side chain (inclusive of that between C13–C14). The subscript "α" denotes that the orientation of the OH group at the 9–position of the cyclopentane ring is above the plane of that ring. The names of the first two PGs were assigned on their method of separation: PGE from Ether and PGF from phosphate buffer (Fosfat in Swedish language). PGA and PGB were so named because the former was stable in Acid while the latter in Base. The alphabets like D, H and I were later suffixed to PGs in a random manner. PGE2 has a C=O group at position 9 and an OH group at SJIF Impact Factor 6.222 Review Article ISSN 2394 –3211 EJPMR EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH www.ejpmr.com ejpmr, 2024, 11(1), 130–139 ABSTRACT Prostaglandins are bioactive lipid compounds derived from fatty acids and are important signalling molecules in the human body. They exert their effects by binding to sp ecific receptors known as prostaglandin receptors. These receptors are integral to a wide range of physiological processes, including inflammation, pain perception, blood flow regulation, and reproductive functions. There are several types of prostaglandin receptors, classified into various families, including EP, FP, DP, IP, and TP receptors. Each type of receptor responds to specific prostaglandin subtypes. The activation of prostaglandin receptors triggers intracellular signalling cascades, ultimately leading to diverse effects, such as vasodilation, vasoconstriction, inflammation, and pain perception. In inflammation, prostaglandins promote vasodilation, making blood vessels wider to allow immune cells to reach the affected area, resulting in redness and swelling. They also contribute to pain perception by sensitizing nerve endings. Prostaglandins are crucial for regulating blood pressure and blood clotting. Some types cause vasoconstriction, while others cause vasodilation. This balance affects blood pre ssure. In reproductive health, prostaglandins play a key role in uterine contractions during menstruation and labour. Understanding the interactions between prostaglandins and their receptors is essential for developing targeted therapies and medications. Medications that either stimulate or inhibit specific

prostaglandin receptors can be used to treat various medical conditions. Many research had been carried out to develop and make use of prostaglandin analogues to treat various diseases. But with the changing era and advancement in technology, more emphasis on research and development is required for the benefit of health care system. KEYWORDS: Prostaglandins, eicosanoids, biosynthetic pathways, Prostanoid Receptors