

# Landmarks in Intracellular Signalling

by R D Burgoyne  
and O H Peterson

The intracellular signalling pathways that control cell function have been, and still are, one of the most intensively studied aspects of biology. In recent years the detailed characterization of the multiple cell-signalling pathways by many laboratories has resulted in a bewildering increase in knowledge in this field. For this reason, students and others learning about this topic for the first time are increasingly overwhelmed by the mass of information and frequently are unable to find time to read and digest the key original papers.

The idea behind Landmarks in Intracellular Signalling is to provide full reproductions of a set of key papers which have been chosen as landmark papers in the various aspects of intracellular signalling. The selected papers have all resulted in significant advances in one or other aspect of intracellular signalling. Readers of Landmarks in Intracellular Signalling will now have easy, ready available access to the original literature from one source. The papers are accompanied by commentaries that describe why the papers are significant, how the work came about and summarize the advances that have been made up to the present time as a consequence of the original paper. The commentaries will also serve as mini-reviews of many aspects of cell regulation and can be read on their own.

The area of intracellular signalling is relevant to many areas of biology and the basic principles need to be understood by undergraduates in many disciplines. Background knowledge of this area is also important for postgraduate students in many fields as well as more senior research workers and academics.

## Contents:

- **Section 1: Cyclic AMP**  
Rall and Sutherland, *J. Biol. Chem.* (1957) & (1962); Walsh, Perkins and Krebs, *J. Biol. Chem.* (1968).
- **Section 2: Isolation and characterization of G-proteins**  
Rodbell *et al.*, *J. Biol. Chem.* (1971); Northup *et al.*, *Proc. Natl. Acad. Sci. U.S.A.* (1980).
- **Section 3: Structure of the  $\beta$ -adrenergic receptor** Dixon *et al.*, *Nature* (1986).
- **Section 4: The patch clamp technique** Hamill *et al.*, *Pflügers Arch.* (1981).
- **Section 5: The nicotinic acetylcholine receptor channel** Imoto *et al.*, *Nature* (1988).
- **Section 6: The role of cyclic GMP in photoreceptors**  
Fesenko, Kolesnikov and Lyubarsky, *Nature* (1985).
- **Section 7: Voltage-sensitive  $Ca^{2+}$  channels** Nowycky, Fox, and Tsien, *Nature* (1985).
- **Section 8:  $Ca^{2+}$  uptake into intracellular stores** Ebashi and Lipmann, *J. Cell Biol.* (1962).
- **Section 9: Inositol 1,4,5 triphosphate releases  $Ca^{2+}$  from intracellular stores**  
Hokin and Hokin, *J. Biol. Chem.* (1953); Streb *et al.*, *Nature* (1983).
- **Section 10: Cytosolic  $Ca^{2+}$  spiking** Woods, Cuthbertson and Cobbold, *Nature* (1986).
- **Section 11: Protein kinase C**  
Takai *et al.* *Biochem. Biophys. Res. Comm.* (1979); Parker *et al.*, *Science* (1986).
- **Section 12: Calmodulin** Cheung, *Biochem. Biophys. Res. Comm.* (1970).
- **Section 13: The site of action of  $Ca^{2+}$  in exocytosis in neurons and neuroendocrine cells** Katz and Miledi, *J. Physiol.* (1967); Baker and Knight, *Nature* (1976).
- **Section 14: Endothelium-derived relaxing factor is nitric oxide**  
Palmer, Ferrige, and Moncada, *Nature* (1987).
- **Section 15: Src: tyrosine phosphorylation and Src-homology domains in signal transduction pathways**  
Hunter and Sefton, *Proc. Natl. Acad. Sci. U.S.A.* (1980); Sadowski, Stone and Pawson, *Mol. Cell. Biol.* (1986).
- **Section 16: Phosphatidylinositol 3-kinase in signal transduction and intracellular membrane traffic** Whitman *et al.*, *Nature* (1988).
- **Section 17: The ras/MAP kinase pathway** Ray and Sturgill, *Proc. Natl. Acad. Sci. U.S.A.* (1987).
- **Section 18: Growth factor receptors and oncogenes** Downward *et al.*, *Nature* (1984).
- **Section 19: Control of transcription by nuclear receptors** Hollenberg *et al.*, *Nature* (1985).
- **Section 20: Cyclic AMP regulation of gene transcription** Montminy and Bilezikjian, *Nature* (1987).

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