

## Cell Signalling

J. T. Hancock. Oxford: Oxford University Press, 2010: 3rd edn.  
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Cell signalling and its perturbation in disease is perhaps the fastest growing area of biochemical research. Putting the term 'cell signalling' into PubMed produces over 350,000 published papers. Therefore, there is need for an informative and readable introduction to the subject. Hancock attempts to do this, but I found the result somewhat disappointing.

The cells of multicellular organisms need to communicate with each other in order to coordinate growth and differentiation. This is carried out by secretion of soluble signalling molecules that interact with plasma membrane receptors. These transduce the signal across the membrane and initiate a cytoplasmic signal cascade culminating in specific gene activation. There are thus three clear parts to the process, and mutations leading to changes in one or more stages of the process are evident for example in cancer cells. Unfortunately, the organisation of the book makes it difficult to understand the way in which these three stages interact.

The diagrams are of poor quality and the figure legends are very brief and uninformative. For example, Figure 8.6 illustrates a complex signal pathway involving inositol substrates which I would think incomprehensible to a newcomer to the field. Common themes and structures are

not emphasised; for example, activation of receptors or intracellular enzymes commonly occurs by phosphorylation of tyrosine, serine or threonine residues. Again, the book treats this topic in a superficial manner, and unifying principles such as src homology domains are not emphasised.

The many signalling pathways in the cell converge on a few common intermediates and a smaller number of transcription factors. How does the cell know which signalling molecule has initiated the response and how do different pathways communicate (crosstalk) with each other? Again, these topics are not addressed in a meaningful manner.

Chapter 3 describes some of the techniques used to investigate cell signalling. The description of the techniques is so brief as to be of little use and the importance of gene and protein (including phosphoprotein) arrays in identifying signalling molecules is not adequately described. Although dated, other introductions to the field of signal transduction are available, are suitable for both undergraduates and postgraduates and avoid many of the deficiencies in *Cell Signalling*.

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