

SPRINGER BRIEFS IN BIOCHEMISTRY AND  
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Lucy W. Barrett  
Sue Fletcher  
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Untranslated Gene  
Regions and Other  
Non-coding Elements  
Regulation of  
Eukaryotic Gene  
Expression

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# Untranslated Gene Regions and Other Non-coding Elements

Regulation of Eukaryotic Gene Expression

 Springer

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# Preface

The completion of the human genome project in 2003 estimated the number of human genes to be between 20,000 and 25,000. It was assumed that humans, being highly complex organisms, would have many more genes than less complex organisms. However, *Caenorhabditiselegans* (roundworm) is estimated to have around 20,000 genes, and the number of mice genes is also in the same range as humans. This revelation meant that organism complexity could not be the result of a higher number of genes. Although there was no correlation between complexity and the number of genes, there was a clear correlation with the relative amount of non-coding sequences in the genome. In humans, only around 1.5 % of the genome is protein-coding, while the rest consists of introns, regulatory sequences and non-coding RNA. In the 10 years since the completion of the human genome project, research has rapidly progressed and we are now beginning to understand the importance of non-coding sequences. This book aims to summarise current knowledge about the non-coding regions of the eukaryotic genome and the roles they play in gene regulation and expression.

Lucy W. Barrett  
Sue Fletcher  
Steve D. Wilton

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