

# Introduction

**Susan M. Rosenberg and  
Michael M. Cox**

Mutations happen. It has long been clear that rates of mutagenesis are not constant in organisms or populations or species, but can be affected by a range of environmental factors. When cells come under stress due to environmental constraints on growth, mutation can be the path to change and survival. The mutations can take many forms, and the processes that lead to them exhibit both commonalities and variations in the different organisms where they have been studied.

In this and the following issue, we present articles from scientists who have explored the mutagenic processes that allow adaptation to a new environmental reality. These mechanisms play a key role in evolution itself, and are relevant to the genetic changes in viruses and cells that lead to pandemics and antibiotic resistance and cancer.

We thank all of the authors for their excellent contributions to these special issues.