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Preface

Special issue: Cell biology of metals

Life on Earth is determined by the availability of transition metals. The global electron exchange that permits the extraordinary diversity of living species is entirely dependent upon the facile chemistry of these few trace elements. Despite this critical role of transition metals, progress has been slow in defining the essential cell biological events determining the uptake, trafficking and metabolism of these metals in living organisms. Nevertheless, the past 10 years have seen remarkable advances in our knowledge in this area due to the elucidation of the molecular genetic basis of disorders of metal homeostasis as well as the development of novel experimental approaches in model organisms. This current issue celebrates these recent discoveries with topical reviews that we believe highlight some of the most fascinating areas. The intent has not been to be comprehensive but rather select, utilizing scientific leaders in specific areas where the advances illustrate the remarkable diversity of approaches that have permitted such understanding. The articles have been designed to ease teaching of this exciting and rapidly developing field of "cell biology of metals", and we therefore hope that wide use will be made of the work. For the student, these reviews are meant to highlight limitations as well as achievements and thus stimulate enthusiasm for further discovery. The cell biology of metal metabolism has emerged as a vital and productive field, providing discoveries at the forefront of biology and forging paths to new therapeutic paradigms for patients. We are hopeful this issue conveys the excitement of these discoveries and creates a framework for a brilliant future.

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