Preface

That microbial physiology is fundamental to all aspects of microbiology, from cellular behaviour, through metabolism, to host interactions and pathogenicity, is admirably illustrated by the Chapters in this volume of *Advances in Microbial Physiology*. In Chapter 1, Radford and Whitworth show how a combination of genetics and physiology illuminate the extraordinarily complex predatory behaviour of the myxobacteria. He and Lidstrom (Chapter 2) discuss the need to understand the physiology of growth of methanotrophs at low methane concentrations if these bacteria are to be harnessed to ameliorate this potent greenhouse gas. In Chapter 3, Lecomte and Johnson explain how the structure and biochemical properties of the globins of oxygenic phototrophs enable diverse physiological roles. The production of hydrogen sulfide by sulfidogenic bacteria in the dysbiotic gut can lead to a variety of negative health consequences (see the front cover illustration) that are discussed in Chapter 4 by Pimenta et al. The final two Chapters illustrate how microbial physiology can help in elucidating the development of antimicrobial tolerance in *Staphylococcus aureus* (Fait et al., Chapter 5) and the complex interactions that occur in polymicrobial infections (Bényei et al., Chapter 6).

Robert K. Poole and David J. Kelly
Sheffield, June 2024