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EDITORIAL NOTE

Former QRB Editor Richard Henderson awarded the Nobel Prize

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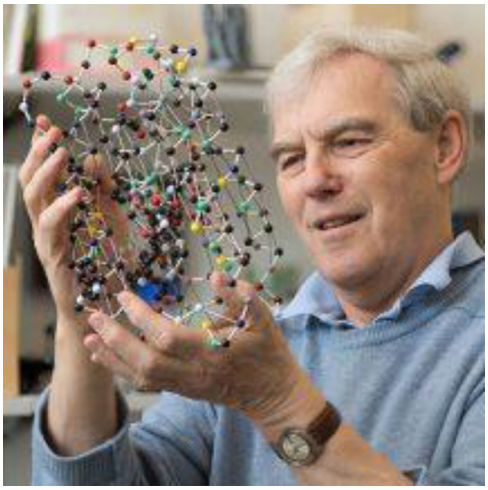

Richard Henderson
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We wish to celebrate our friend and editorial board colleague, and former Editor in Chief of *Quarterly Reviews of Biophysics*, Dr Richard Henderson, Cambridge, for being awarded the 2017 Nobel Prize in Chemistry.

Richard Henderson, born on 19th July 1945 in Edinburgh, Scotland, receives the Nobel Prize for

"for developing cryo-electron microscopy for the high-resolution structure determination of biomolecules in solution".

He shares the prize with Jacques Dubochet and Joachim Frank. The rather complicated prize motivation reflects the fact that the achievement involves several seminal methodological components, which together have led to a breakthrough in the way structure and function today may be unveiled for the most important biological systems, which are generally not amenable to study by the standard crystallographic X-ray or nuclear magnetic resonance techniques.

Henderson worked on the structure and mechanism of chymotrypsin for his Ph.D. with David Blow at the MRC Laboratory of Molecular Biology in Cambridge. This interest in membrane proteins led him to work on voltage-gated sodium channels as a post-doctoral researcher at Yale University, CT, USA. Returning to the MRC Laboratory of Molecular Biology in 1975, Henderson worked with Nigel Unwin to study the structure of the membrane protein bacteriorhodopsin by electron microscopy. In a seminal paper in *Nature*, they established a low-resolution structural model for bacteriorhodopsin showing the

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protein to consist of seven transmembrane helices. This paper was important for a number of reasons, not the least of which was that it showed that membrane proteins had well-defined structures and that transmembrane alpha-helices could occur also in the hydrophobic lipid environment.

Henderson later returned to single-particle electron microscopy. His vision of how single-particle electron microscopy can give atomic resolution models for proteins was outlined in a 1995 review paper in *Quarterly Reviews of Biophysics*. This and other crucial contributions of his, including pioneering development of direct electron detectors, together with the achievements by Drs Dubochet and Frank, have led to today's forceful single-particle cryo-electron microscopy.

On behalf of all Editors of *Quarterly Reviews of Biophysics*, we wish to convey our warm congratulations to Richard Henderson and wish him many more active research years to come.

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