The Anatomy & Taxonomy of Protein Structure
by Jane S. Richardson

[Explanation of the Web version

The original article appeared in 1981, as pp. 167-339 in volume 34 of Advances in Protein Chemistry published by Academic Press. The volume was kept in print for over twenty years but is no longer available. Since it is still being actively cited and has still-applicable content as well as historical interest, we are now making it available electronically.

Once protein structures are solved they remain valid, and these pattern analyses were done conservatively; therefore almost nothing here has since been invalidated. However, the immense growth in structures solved since 1981 has shown new fold types and prompted new analyses. Short of the truly daunting task of a complete update the best solution seemed to be the addition of commentary as flagged notes (in green), to alert the reader to the most important newer information with brief explanations and references to follow further. With the addition of the notes, it is once again reasonable to send students to this reference for a detailed overview of protein structure.

Since the original manuscript predated our first word processor and the illustrations were hand drawn (by JSR) and then reproduced by high contrast optical photography (by DCR), putting the 173 pages and 109 multi- part figures into electronic form and cleaning them up was a very large task, done by Claudia J. Richardson with help from Dave Richardson. The new notes were written by Jane Richardson. The HTML pages were implemented by Claudia Richardson and Bryan Arendall with the final design of both HTML and PDF pages by Bryan Arendall.

We use several typographical cues to indicate source and status of document text. Original text is colored black, is of Times font-face (or a Serif font-face called for in your browser). Updates, as noted, are colored green, are presented in a sans-Serif type face, the font size is smaller than original text, and the added text appears in brackets. Outdated text sections are grayed out and left in place, they are not removed: the text is changed from black to gray, reduced in size, and preceded by "****". Figures were scanned from original prints at high resolution then resized to fit the web pages and the PDF documents. As web images are limited to 72dpi, it was necessary to increase the size of a few images to decrease pixelation. Literature references can be viewed in three ways: 1) a bibliography is available, 2) clicking on the in-line citation will open a new, smaller browser window showing the bibliography entry, and 3) hovering the mouse pointer over the in-line citation for a few seconds, will in most browsers bring up a text-box showing the bibliography entry. Document navigation can also be done in three ways: 1) a table of contents is available, 2) at top-right on every page is a gray box containing context-sensitive links, and 3) at bottom of every page are links to move to the next or previous pages. Printing from the web will yield pages with no navigational content and 150dpi images. We cannot however control the page breaks which will occur. For higher quality printouts, PDF formatted documents are available for download. Links are at the bottom of the page: typically, two PDFs will be available: one will be for the content of the current document (e.g. section 1a), the other for the entire section.

Some pages have active displays in the form of Java displays of kinemage files. Your browser will have to have "Java-enabled" in its setup preferences to see these displays. The availability of the active display will be marked by two small images: the first is a button to launch the display in a separate window; the second is a thumbnail of the initial state of the kinemage. In the future, we plan to add further commentary and more on-line graphics in this form. For examples and explanations, see our web site at http://kinemage.biochem.duke.edu/]