The structural, spectral, and stability properties of myoglobin from hoki fish (*Macruronus magellanicus*).

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In vertebrates, myoglobin (Mb) is known to occur exclusively in cardiac and red skeletal muscles, but not in white skeletal muscles. Therefore, only few studies have so far been made on the myoglobin from a fish with white flesh. For comparative examination, we have directly isolated myoglobin from the cardiac muscle of whitefish, hoki (*Macruronus magellanicus*). In the course of purification procedures, oxymyoglobin (MbO_2) was separated from its ferric met-form on a DEAE-cellulose column. The absorption spectra of hoki Mb were similar to those of big-eye tuna skeletal Mb, both in the oxy-form and in the met-form. However, hoki MbO_2 was found to be susceptible to autoxidation, its rate being more than 3 and 18 times higher than that of big-eye tuna MbO_2 and sperm whale MbO_2, respectively. We have also determined the complete amino acid sequence of the myoglobin. Hoki Mb was composed of 146 amino acid residues, and showed a very high degree of homology (72 %) with yellowfin tuna Mb. Furthermore, we have found that the degradation reaction of trimethylamine-*N*-oxide (TMAO) to dimethylamine and formaldehyde was accelerated in the presence of hoki Mb.