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	 2.3.1.2 Late Determined Melanoblasts: A Common Origin with SCPs and the Dorsoventral Migratory Pathway2.3.2 Nonclassical Melanocytes; 2.3.2.1 Melanocytes of the Murine Eye; 2.3.2.2 Melanocytes of the Murine Heart; 2.3.2.3 Other Nonclassical Murine Melanocytes; 2.3.2.4 Other Organisms; 2.4 Transfer of Melanin from Classical and Nonclassical Melanocytes; 2.4.1 Melanosome Transport; 2.4.2 Melanosome Transfer; 2.4.2.1 Melanosome Transport; 2.4.2 Melanocytes; 2.4.2.2 Transfer of Melanin from Nonclassical Melanocytes; 2.4.2.2 Transfer of Melanin from Nonclassical Melanocytes; 2.4.2.2 Transfer of Melanin from Nonclassical Melanocytes; 8.6ferences; 3: Biological Chemistry of o-Quinones 3.1 General Biological Significance of o-Quinones3.1.1 Antibiosis; 3.1.2 Defensive Secretions; 3.1.3 Balanid Adhesion; 3.1.4 Cuticular Hardening in Insects; 3.1.5 Pigmentation; 3.2 o-Quinone Reactivity; 3.2.1 Structure and Reactivity; 3.2.2 Reduction; 3.2.3 Addition Reactions: Intermolecular addition; 3.2.4 Polymerization; 3.2.5 Intramolecular Addition (Cyclization); 3.2.6 Addition-Elimination (Substitution) Reactions; 3.3 Role of o-Quinones in Melanogenesis; 3.3.1 Nonenzymatic Formation of Melanogenic Intermediates 3.3.1.1 Contributions from Pulse Radiolysis to the Chemistry of Eumelanogenesis and Pheomelanogenesis; 3.3.2 Dalance between Eumelanogenesis: Phase I Melanogenesis; 3.3.4 Tyrosinase Activation; 3.3.5 Tyrosinase Inactivation; References; 4: Biosynthesis of Melanins; 4.1 Introduction; 4.2 Raper-Mason Pathway; 4.2.1 Phase I Melanogenesis: The Proximal Raper-Mason Pathway-From L-tyrosine to L-dopachrome; 4.2.2 Distal Melanogenic Steps: From L-Dopachrome to Eumelanins; 4.2.3 Biosynthesis of Pheomelanins 4.3 Structural and Functional Properties of the Melanogenic Enzymes
Sommario/riassunto	The surface pigmentation of vertebrates is controlled by specialized cells able to synthesize a variety of pigments collectively known as melanins. Recent research has shown that melanins are produced not only in the skin but also in many other sites such as the eye, inner ear, muscles, etc., - where they are engaged in some unanticipated roles. The details of the synthetic pathway, the complexities of its regulation and biological significance that have been unravelled in recent research comprise a fascinating story and are of key importance in understanding the nature of diseases, includin