Cytochrome P4051A Expression and Localization in Organs of the Minke Whale (Balaenoptera acutorostrata)

J. J. Stegeman , C. A. Miller , J. Beyer , M. J. Moore , A. GoksÃ¸yr

Source

Marine Environmental Research > 1998 > 46 > 1-5 > 128

Abstract

Hepatic CYP1A expression has been used as a marker of exposure of animals to aryl hydrocarbon receptor agonists in most vertebrate groups, including marine mammals (White et al. (1994) Toxicology and Applied Pharmacology 126, 45-57). Analysis of extrahepatic organs can show whether expression occurs elsewhere in the body. We examined the levels of CYP1A activity (EROD) in liver microsomes of minke whale, comparing these to rates of PROD activity, and to the content of polychlorinated biphenyls (PCBs) and other contaminant residues in blubber. Then multiple organs were examined by immunohistochemistry for expression of CYP1A. Animals were sampled in the summer of 1992 from near 67-69 º N and 12-16 º E. Hepatic microsomes were prepared from liver tissue. In seven animals ex…

more

Identifiers

journal ISSN : 0141-1136

Authors

J. J. Stegeman
Biology Department, Woods Hole Oceanographic InstitutionWoods Hole, Massachusetts 02543USA

C. A. Miller
Biology Department, Woods Hole Oceanographic InstitutionWoods Hole, Massachusetts 02543USA

J. Beyer
Laboratory of Marine Molecular Biology, Department of Molecular Biology, University of BergenN-5020 BergenNorway

M. J. Moore
Biology Department, Woods Hole Oceanographic InstitutionWoods Hole, Massachusetts 02543USA

see all

Additional information

Publication languages:	English
Data set:	Elsevier

Publisher

Elsevier Science

Fields of science

No field of science has been suggested yet.

The minke whale (Balaenoptera acutorostrata) is an Atlantic finback whale regularly migrating to areas in the north where they feed on pelagic fish and crustaceans [16]. Minke whales have a thick layer of blubber [17] which is a vascularized hypodermal adipose tissue, vital for buoyancy, thermal insulation, and energy storage [18]. The blubber is a modified adipose tissue composed of adipocytes and connective tissue comprised of highly organized elastin and collagen fibers [19].Â Previous dietary studies of cold-pressed oil from minke whale blubber (CWO) have indicated beneficial effects on CVD markers and improved an anti-inflammatory effect, also in comparison to cod liver oil (CLO) supplementation [20, 21]. Metabolic rates of minke whales (Balaenoptera acutorostrata) in cold water. Body temperature, blubber thickness and lung capacity (Vc) were recorded in newly killed minke whales, while respiratory frequency (f) was determined in free-swimming animals. Mean deep (thoracic) body temperature was 34.7 +/- 0.8 (SD) more.Â ABSTRACT The anatomy of the gastrointestinal system of Northeastern Atlantic minke whales (Balaenoptera acutorostrata) was investigated. The stomach consisted of four compartments. The first chamber, or forestomach, was non-glandular and was lined with a keratinized stratified squamous epithelium. Common minke whales, Balaenoptera acutorostrata LacÃ©pÃ¨de, 1804, are a common sighting between the months of April to November, however, the migration and distribution of the population in winter requires establishing. The present study provides baseline information on the species composition, geographic distribution and abundance of the epibiotic macrofauna on minke whales landed in Icelandic waters and comments on their acquisition. Methods. The epibiotic macrofauna and skin lesions on 185 and 188 common minke whales respectively, landed in Icelandic waters between April to September 2003-200