Abstract for Oral Presentation/Paper

Cytochrome P450 Monoxygenase Complex and Skin Development.

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Cytochromes-P450 (CYPs), the first line-defence in the detoxification of drugs/harmful chemicals, play a role in various biological processes such as fatty acid metabolism. For these functions, CYPs form a complex with P450-oxidoreductase (POR) and cytochrome-b_5 (cytb_5). To investigate this complex in more detail, we developed mouse models where either POR or cytb_5 was knocked out in the liver or the organism as a whole. Results show the absence of POR/cytb_5 has a dramatic effect on all CYP functions [1, 2]. In studies involving knockout cytb_5 mice, a role in skin development was identified [3]. Changes observed were very similar to patients suffering from ichthyosis skin disorders [4]. These disorders are associated with loss of very long chain fatty acids. The CYP4 family function in the production of these fatty acids, therefore the defects observed in these mice maybe due to disrupted CYP4 activity. Supporting this hypothesis, genetics disruptions in CYP4F22, have been identified in patients suffering from lamellar ichthyosis [5]. A role for this new CYP in very long chain fatty acid production in the skin remains unproven as does a link between its function and cytb_5. This paper will report these findings and the directions which will be taken to decipher these links.

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4. Akiyama M & Shimizu H (2008) An update on molecular aspects of the non-syndromic ichthyoses. *Exp Dermatol* 17(5): 373-382.
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