The homeodomain only protein x (HOPX) is closely related to the HD-containing protein family members, sharing the 40-45% of identity with the two most closely related homeodomains Pax6 and Gsc. Interestingly, HOPX is conserved not only among vertebrates but as well in invertebrates. Indeed, the existence of HOPX-related proteins was revealed in several invertebrates like Apis mellifera (honeybee) and Ixodes scapularis (black-legged tick), meaning that HOPX-type proteins are ancient. However, all previously described HD-containing proteins are more than 200 amino acid longs and have other sequence elements, while HOPX is composed almost entirely of a HD-like sequence that lacks critical residues important to mediate the DNA-bindings among all known homeodomains. More specifically, HOPX structure in solution is characterized by three alpha-helices connected by short loops, resembling the homeodomain fold, but it is unable to bind DNA because of the absence of key resud e ues which are normally conserved in other HD-containing proteins.

Originally identified as a key factor in cardiac development, HOPX regulates as well proliferation/differentiation homeostasis in different cell types, such as pneumocytes, myocytes, and keratinocytes. More specifically, it was reported that HOPX is a novel regulator of late differentiation in keratinocytes, regulating the expression of differentiation marker such as profilaggrin (FLG) and loricrin (LOR), even though HOPX partner proteins have not been yet identified. In order to address this issue, we first modified HOPX with a particular N-terminal tag consisting of six histidines and a biotin acceptor site. We will then produce retroviral particles carrying the modified HOPX, and use them to infect keratinocytes to express HOPX. Finally, using a double-tag purification method, we will purify the HOPX-ligand(s) complex(es) from keratinocytes, and will analyze them using different assays to identify novel interacting partners.

P72

Searching for hopx ligands in keratinocytes

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Discussion: Two cases of MC associated to HCV chronic infection in patients under sorafenib treatment are presented. It is hypothesized that sorafenib facilitates both formation and precipitation of immune complexes on the small vessels. In our opinion, presence of cryoglobulinemia should be investigated before and during treatment with sorafenib in patients with HCV infection.

P71

Atypical vascular lesions of the skin after radiotherapy for a breast cancer: a diagnosis to remember

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Introduction: Post-radiation atypical vascular lesions of the skin (AVL) are rare but well described in the literature. They display clinical and morphological overlap with well-differentiated angiosarcomas and the diagnosis could sometimes be problematic. The lesions may develop within a few months to years after radiation therapy or surgery of the breast. Two main histological variants are described: the vascular and the lymphatic type. Some studies report an evolution to a malignant angiosarcoma, especially for the more aggressive vascular type. Histological and immuno-histochemical analyses are useful for a correct diagnosis and for ruling out a malignant vascular proliferation.

Case report: We report the case of a 63 years-old woman, operated with lumpectomy in 2006 for a ductal carcinoma of the left breast. A standard protocol of chemotherapy and radiotherapy was performed as adjuvant treatment. Seven years after the radiotherapy, the patient developed quickly multiple vascular nodules on the treated zone of her left breast. Histological and immuno-histochemical analyses (CD31, MIB-1) supported the clinical diagnosis of post-radiation AVL and the absence of high expression of MYC ruled out a cutaneous angiosarcoma.

Conclusion: Post-radiation AVL of the skin are benign lesions that display clinical, histological and immuno-phenotypic overlap with well-differentiated angiosarcomas. Diagnosis requires good clinico-pathological correlation. In patients with breast cancer and a history of radiation therapy, close monitoring of the skin for new vascular lesions is recommended and a low threshold for biopsy should be emphasized. The treatment of choice is surgical excision of isolated and well-delimited skin lesions.