



MOLECULAR MECHANISMS OF TUMOUR STIMULATION IN LIVER REGENERATION

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Only a small proportion of patients with liver tumours can be treated with a curative intention by either surgery or local ablative therapies. The majority of these patients will subsequently have cancer recurrence. The liver has the unique capacity to regenerate following surgical resection. Immediately after hepatectomy, there is increased expression of growth factors and their receptors. These factors which are responsible for regeneration also may increase the growth of micrometastases present in the liver. This study investigates the effect of growth factors and their receptors involved in liver regeneration on the pattern and rate of tumour growth of new and established liver metastases.

An established mouse model of 70% liver resection and colorectal cancer liver metastases will be used in this study.

Techniques:

RNA extraction
Real Time RT-PCR
ELISA
Western Blotting
Histopathology
Stereology
Immunohistochemistry
Animal models

Projects

1. The role of matrix metalloproteases (MMPs) during the late phase of liver regeneration.
2. The Systemic regulation of growth factors following major hepatectomy.
3. The role of Angiogenic factors in tumour stimulation in liver regeneration.
4. The role of EGFR ligands (TGF-beta, amphiregulin, EGF) in liver regeneration.
5. Investigating the changes in TGF-beta after liver resection and in liver regeneration.

Publications:

Christophi C, Harun N, Fifis T. Liver Regeneration and Tumor Stimulation-A Review of Cytokine and Angiogenic Factors. Journal of Gastrointestinal surgery. Jan 8. 2008. E pub ahead of print. in press.

Dizdarevic A, Harun N, Malcontenti-Wilson C, Shulkes A, Christophi C, Baldwin GS. Gastrin is not required for liver regeneration. ANZ J Surgery, 1-2, 68-71, Jan 2008.

Harun N, Nikfarjam M, Muralidharan V, Christophi C. Liver Regeneration stimulates tumour metastases. J Surg Res. 138(2): 284-90 Apr, 2007.