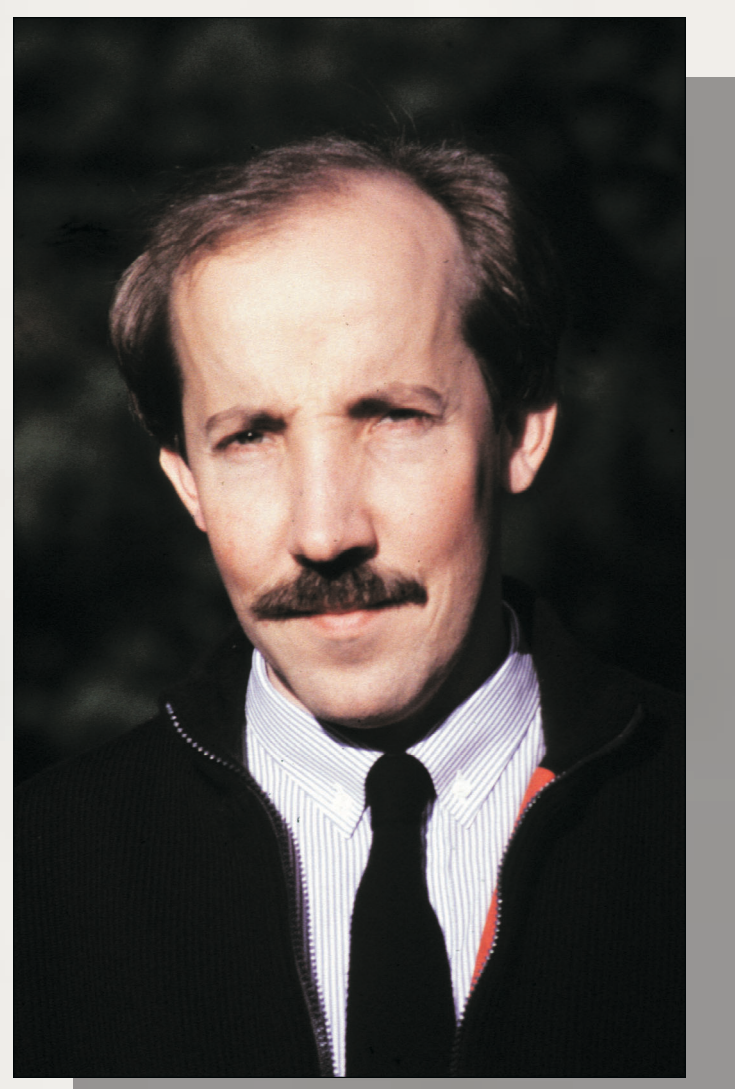
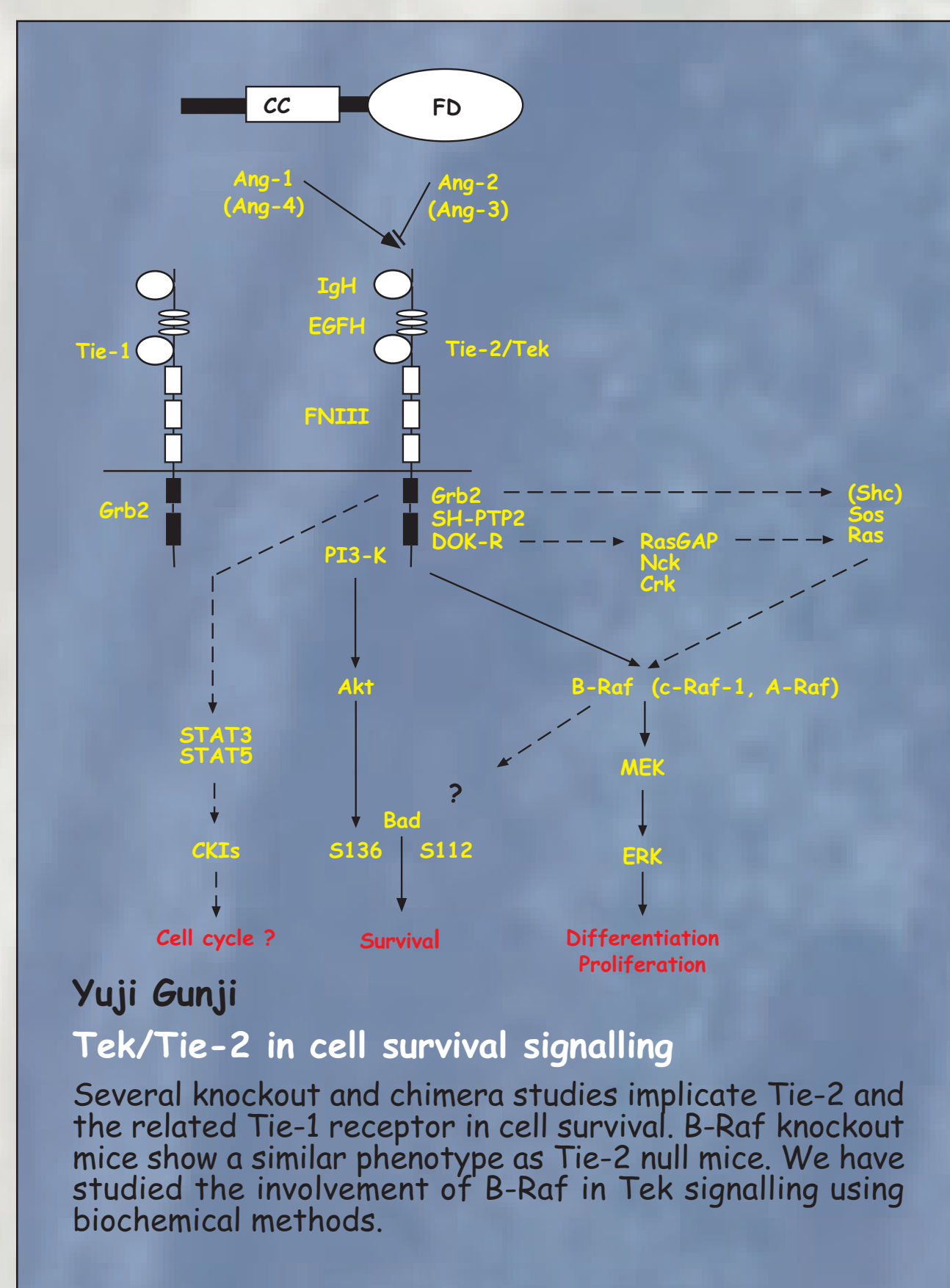
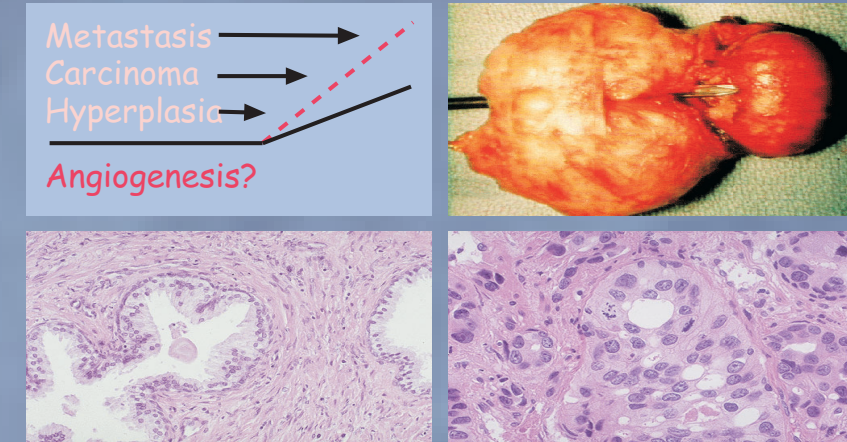


Molecular/Cancer Biology Laboratory



Kari Alitalo

Berndt Enholm
Do pro-angiogenic factors affect the progression of prostate cancer?
Overexpression of pro-angiogenic factors and oncogenes in mouse prostate provides a model to answer this question.

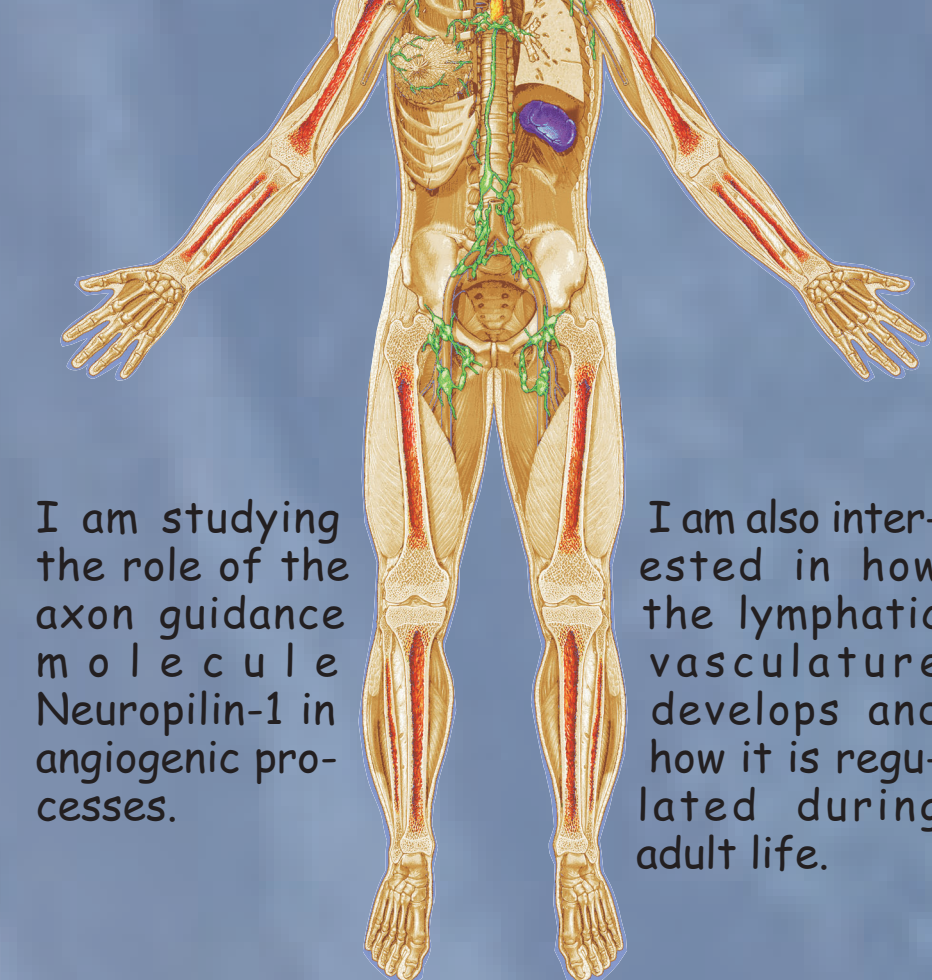


Eola Valdre
VEGF-C knock-out mice and angiogenesis inhibitors

My main project is the gene disruption study of VEGF-C, including conditional knock-out as well as use of the zebrafish in developmental and evolutionary studies of angiogenesis. I am also characterizing the effects of endothelial-specific angiogenesis inhibitors on the proliferation, migration and death of endothelial cells.



Taija Mäkinen
Neuropilin and lymphatic development of vasculature



I am studying the role of the axon guidance molecule Neuropilin-1 in angiogenic processes.

I am also interested in how the lymphatic vasculature develops and how it is regulated during adult life.

Kristiina Iljin

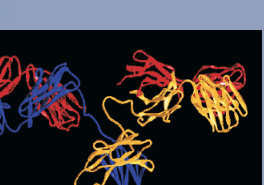
Tie-1 promoter studies

Tie-1 is one of the five endothelial cell specific receptor tyrosine kinases. I am studying the regulation of the Tie-1 gene. My aim is to characterize DNA elements from the Tie-1 promoter region needed for the activity and endothelial cell specificity of this gene.



Taina Partanen & Anne Saaristo
Expression studies

We are analyzing the distribution of VEGF receptor-3 and VEGF-C in normal fetal and adult tissues and tumors by immunohistochemistry.



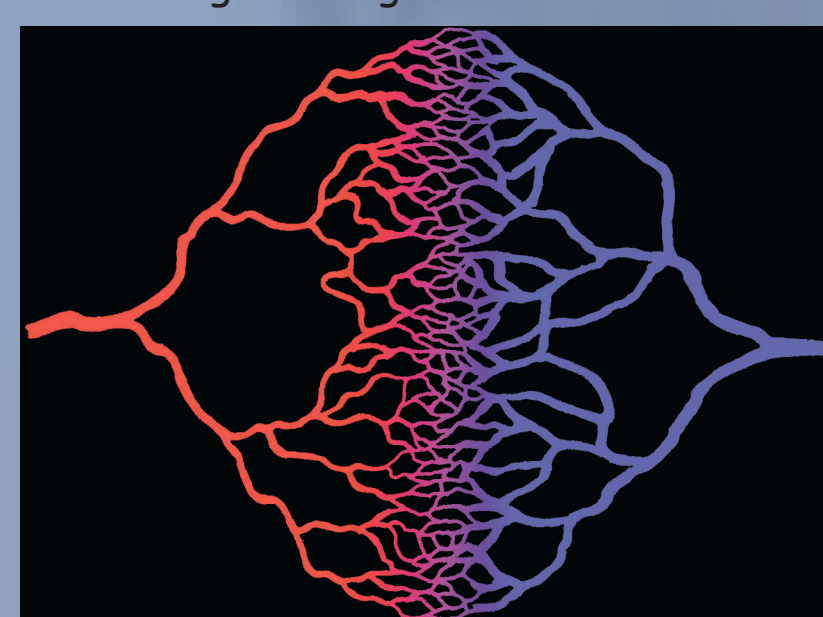
Juha Laurén

Virtual cloning in silico
Apart from web surfing and @-mailing (which occupies me almost totally) I am doing virtual clonings.

Joni Turunen

ALK-1 and blood vessel formation

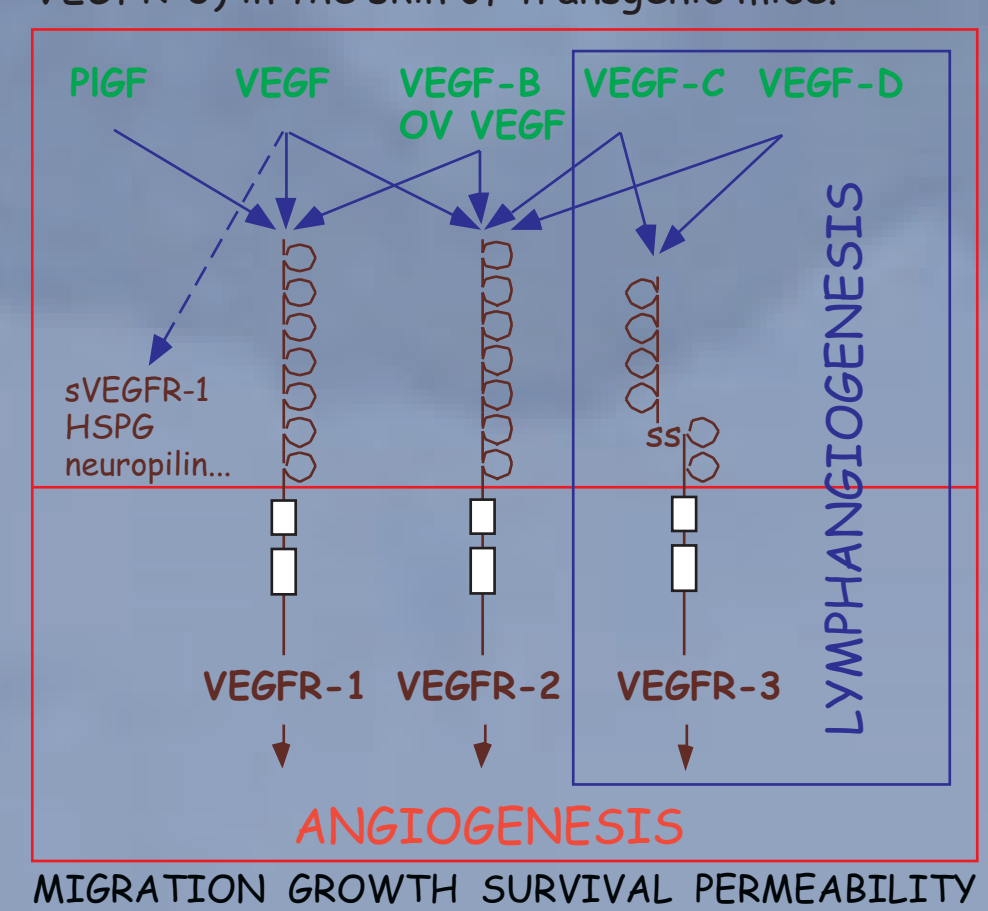
I am studying the role of ALK-1 in blood vessel formation. ALK-1 is a TGF- β superfamily receptor and inactivating mutations of ALK-1 in humans cause hereditary hemorrhagic telangiectasia.



Tanja Veikkola

How do VEGF receptor-2 and VEGF receptor-3 function in live animals?

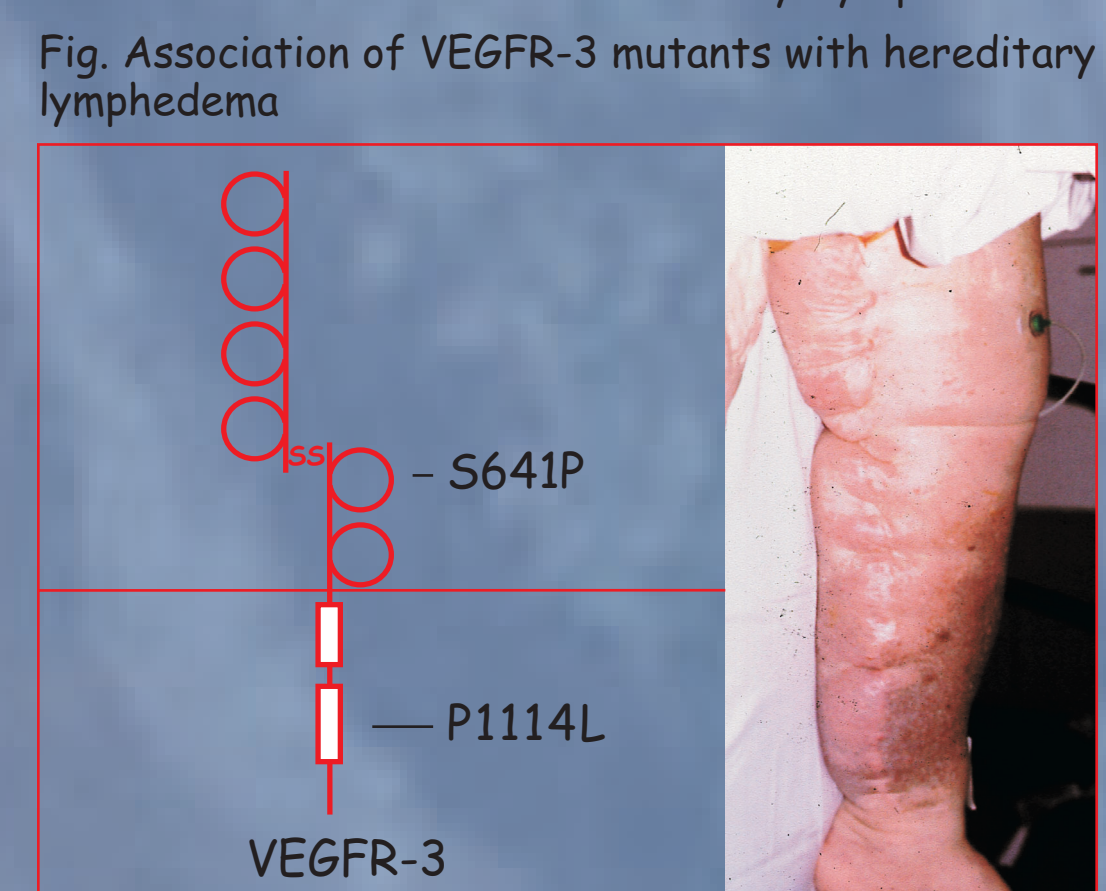
We aim to characterize the different functions of VEGFR-2 and VEGFR-3 in the context of whole organism (as opposed to cell culture) by targeted overexpression of Orf virus VEGF (binds only VEGFR-2), mutant VEGF-C (binds only VEGFR-3) and VEGF-D (binds both VEGFR-2 and VEGFR-3) in the skin of transgenic mice.



Marika Kärkkäinen

VEGFs in malignant tumors and metastases/VEGF receptor-3 mutations in hereditary lymphedema

I study the role of angiogenic growth factors in breast cancer its metastases by using transgenic mouse models. In my other project, I am characterizing the role of VEGFR-3 mutations in hereditary lymphedema.



Marko Uutela

Novel VEGFs

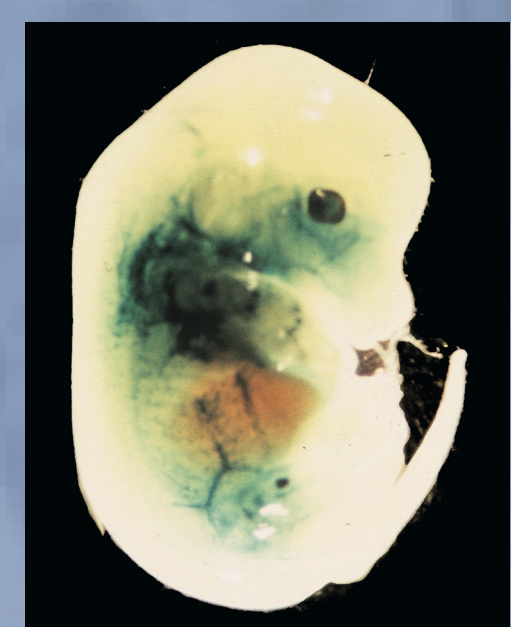
I am studying two new vascular endothelial growth factors discovered during our collaborative work with Ulf Eriksson. I have sequenced their cDNA clones and mapped their chromosomal locations using fluorescence in situ hybridization. At the moment I am studying whether these factors bind to known VEGF-receptors.

Lotta Jussila

Transgenic mouse models for VEGFR-3

I use transgenic mouse models to characterize the role of VEGFR-3.

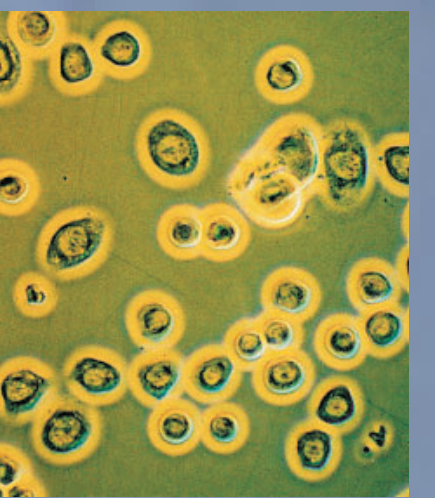
Fig. A 13 day mouse embryo having β -gal gene (blue) marker in lymphatic vessels.



Terhi Kärpänen

In-vivo studies with recombinant proteins

I am studying the role of the VEGF receptor-3 during avian embryonic development and in angiogenesis in adult mice. In these experiments I use recombinant soluble VEGFR-3-Ig fusion proteins for functional blocking of the VEGFR-3 signalling pathway. I am also interested in the biological function and the VEGFR-1 binding determinants of VEGF-B. Fig. Insect cells expressing VEGF-B.



Niklas Ekman, Elena Arighi and Iiro Rajantie

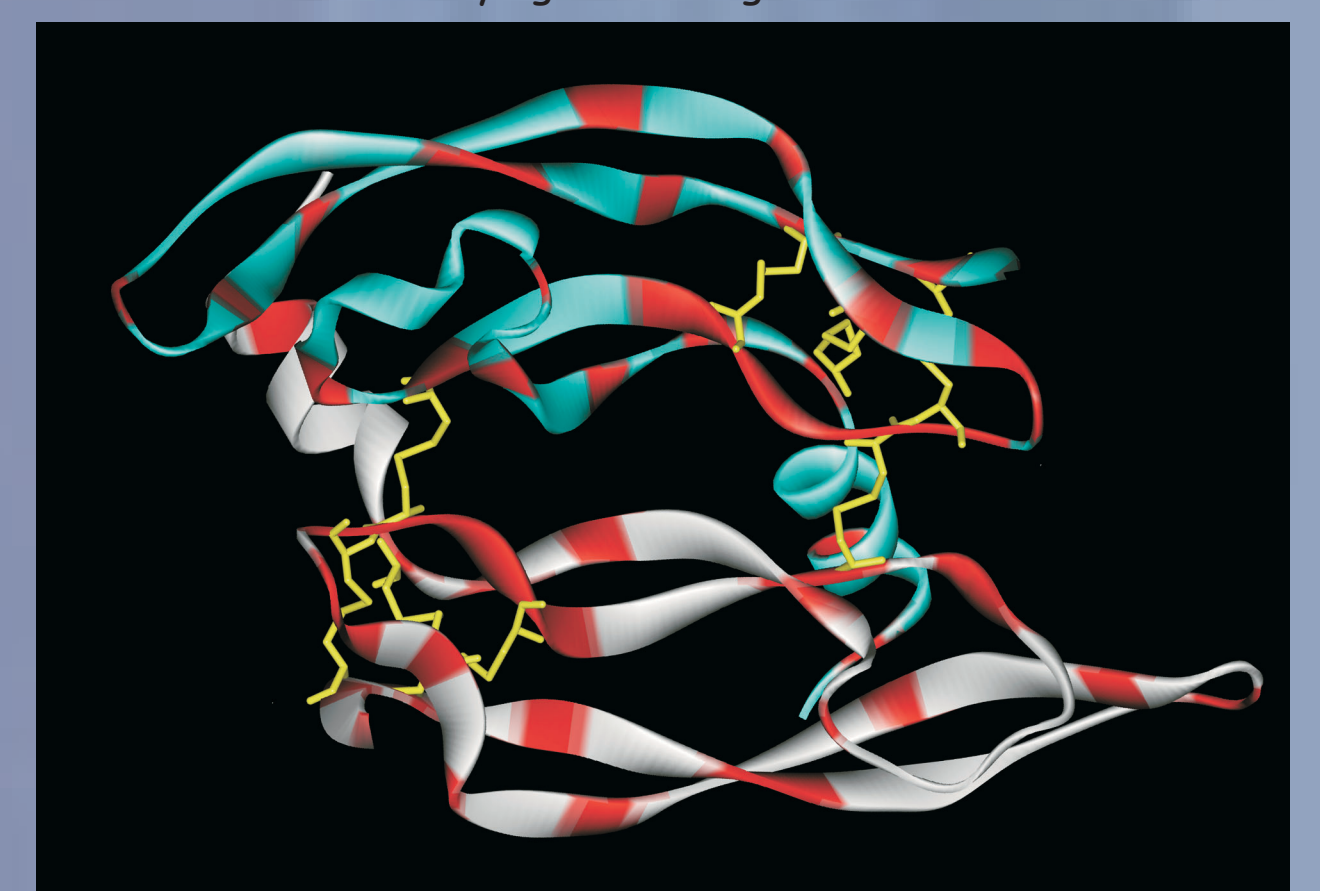
Functional analysis of the Bmx tyrosine kinase

The Bmx (Bone Marrow tyrosine kinase in chromosome X) is a member of the Tec family of nonreceptor tyrosine kinases. The Bmx mRNA has been detected in granulocytes and in certain endothelial cells, but very little has been known about the function of this protein. The goal of the present study is to understand the signalling cascades involving Bmx and the role of the protein in differentiating hematopoietic cells. Both cell culture models and in vivo mouse models are used for this purpose.

Michael Jeltsch

Structural basis of biological activity

VEGF induces blood vessel growth, whereas VEGF-C induces lymphatic vessel growth. Where are the structural differences and similarities underlying the biological function?



Karri Paavonen

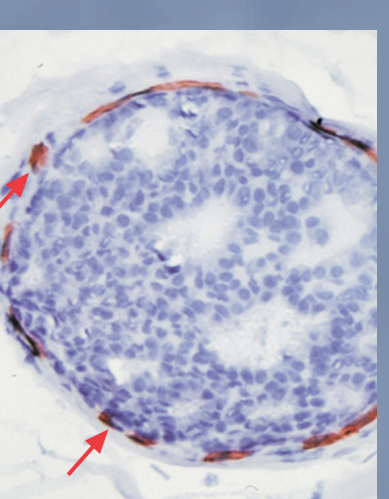
VEGF-C and VEGFR-3 in inflammatory states

I study the role and expression of growth factor receptors in angiogenesis involved in acute and chronic inflammatory states.

Reija Valtola

VEGF-C and VEGFR-3 expression in breast cancer

My studies focus on VEGFR-3 and VEGF-C expression in breast cancer. I am also evaluating biological activities of VEGFR-3- and VEGF-C antibodies. Fig. VEGFR-3 positive vessels in breast cancer.



Selected references

- Dumont et al., Cardiovascular Failure in Mouse Embryos Deficient in VEGF Receptor-3. Science 282: 946-49, 1998.
- Jeltsch et al., Hyperplasia of Lymphatic Vessels in VEGF-C Transgenic Mice. Science 276: 1423-25, 1997.
- Korpelainen & Alitalo, Signaling Angiogenesis and Lymphangiogenesis. Current Opinion in Cell Biology 10: 159-64, 1998.