Like a hurricane: A journey with Tamara into the glioma stem cell niche

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NIB

amC
First encounter of Tamara and Ron

• 30 years ago in Tito’s palace

• Tamara in Bonnie Sloane camp
• Ron in Robert Smith camp
Second and following encounters

• We matured and got rid of the Sloane-Smith controversies

• We savoured our mutual interest in cathepsins (B and L)
Cathepsin B in normal colon, polyp and colon cancer

Protein expression

Protein activity

ec, epithelial cells; ae, apoptotic ec’s; cc, colon cancer; s, stroma
Colon cancer metastasis in liver

lp, liver parenchyma; cc, colon cancer; s, stroma
Cathepsin B at the plasma membrane of colon cancer cells

protein

activity
Our first major joint achievement

- Antiprotease therapy: hot or not?

- Product of the bizarre Genova incident
  (we were rebels in the protease world)
The cancer degradome and the tumor microenvironment
Our mutual interest extended to glioblastoma

Urška Verbovšek

• Differential expression of all protease genes in glioblastoma: cathepsin K

• ‘Oh, I know what cathepsin K is involved in: the glioma stem cell niche!’
Cathepsin K in glioblastoma

Cathepsin K protein expression but no activity

Glioma stem cell niche

Vashendriya Hira

• “The glioma stem cell niche is a copy of the hematopoietic stem cell niche in bone marrow”
Histology of artery and vein

Hira et al, submitted
Glioma stem cell niche around arteriolar adventitia

Hira et al, JHC (2015)
Glioma stem cell niche: chemoattractive receptors and ligands in adventitia

Hira et al, submitted
Cathepsin B, K and X in glioma stem cell niches

Barbara Breznik

• “There are more proteases functional in the niche than cathepsin K”
Cathepsin B, L and X in glioma stem cell niches

Breznik et al, submitted
Histology of artery and vein

Hira et al, submitted
The glioma stem cell niche is a copy of the hematopoietic stem cell niche in bone marrow.
A journey into the glioma stem cell niches with hurricane Tamara

• I sometimes get blown away but most of the time hurricane Tamara inspires me

• She is unique, she is a giant and forever young