Swiss Medical Weekly congratulates Jaco van Rheenen, recipient of the Dr Josef Steiner Cancer Research Foundation Award for 2017

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Since 1986, the Bern-based Dr. Josef Steiner Cancer Research Foundation has presented an annual/biennial award to a young scientist of exceptional accomplishment and promise who leads a cancer research group typically based in Europe. The generous award provides four years of support for an innovative project at the frontiers of translational cancer research, plus a personal prize.

The award in 2017 was recently presented to Jaco van Rheenen, who has just moved from the University of Utrecht to the Netherlands Cancer Institute in Amsterdam. Prof. Dr Jacco van Rheenen was recognized for his groundbreaking research delineating the dynamics of tumor cell invasion and metastasis in mouse models of cancer, via the development of fluorescent imaging tools that enable the visualization of cancer cell movements in real time in primary tumors and metastatic sites. He has used this capability to explore the heterogeneous evolution during tumor progression of cancer cells capable of invasion and metastasis, and is beginning to assess the impact of environmental influences such as Western (high fat) diets on this heterogeneous progression. His research is providing fascinating new insights into tumor cell plasticity with promise to illuminate new targets for anti-cancer strategies.

Swiss Medical Weekly seeks to recognize Steiner laureates by publishing an invited review/perspective that provides a synopsis of the laureate’s award-winning research and its future horizons. Jacco van Rheenen’s perspective [1] accompanies this editorial (see also fig. 1).

Additionally, the announcement by the Dr Josef Steiner Cancer Research Foundation of the 2017 award to Dr van Rheenen can be downloaded from the SMW website.

Disclosures: Douglas Hanahan is the Director of the Swiss Institute for Cancer Research (ISREC) at EPFL and Vice Director of the new Lausanne-based Swiss Cancer Center (SCC).

Reference
Figure 1: The cellular protection mechanisms against the accumulation of mutations. Cartoon of the crypt-villus units of the small intestine. Shown are the three protection mechanisms: 1. conveyor belt-like structure, 2. stem cell competition and 3. crypt fusion.

**Cellular protection mechanism #1:**
*Conveyor belt-like structure*

The majority of cells get shed within 3–5 days

**Cellular protection mechanism #2:**
*Stem cell competition*

Most stem cells get repelled from the niche

**Cellular protection mechanism #3:**
*Crypt fusion*

Monoclonal crypts fuse, restarting the stem cell competition

- Lgr5+ stem cell
- Paneth cell
- +4/5 progenitor cells
- Enterocyte
- Goblet cell
- Enteroendocrine cell