Programme Basic and Translational Cancer Biology

1.1 Objectives and research area

The GROW programme Basic and Translational Cancer Biology was established in 2014 as a merger of three former GROW programmes Cancer Genetics and Tumour Phenotype, Molecular Epigenetics, and Tumour Hypoxia and Microenvironment. When evaluating the past period (2012–2017), we will focus on the past four years (2014–2017), which covers the start of this new programme. However, as this self-evaluation report comprises a period of six years (2012–2017), we will also shortly focus on the history of the programme and its constituent elements in paragraph 1.3.

1.1.1 Vision, mission and objectives

Vision

Combining fundamental research into cancer progression and resistance mechanisms and translating this to patients will drive the discovery of novel life prolonging personalized precision diagnostics and treatments while maintaining optimal function and QoL.

Mission

The mission of Programme 3 is to unravel basic (epi)genetic and cellular mechanisms that underlie the induction, progression and recurrence of malignancies by conducting molecular, histological and quantitative image analysis on blood, urine, cells and tissues from patients and developing in vivo mouse models to develop and implement innovative diagnostic and therapeutical procedures to improve tumour control and avoid harmful effects of disease and treatment.

Objectives

1. To identify diagnostic, prognostic and predictive biomarkers for early detection of cancer and optimal selection of patients for treatment and treatment monitoring in order to prolong life and curtail the adverse effects on normal tissue functioning.
2. To discover new actionable targets that improve the therapeutic ratio in cancer treatment.
3. To stimulate collaborations between GROW scientists to accelerate knowledge discovery and implementation.

1.1.2 Strategy and research area

In 2014, the organizational structure of the GROW was changed and the number of programmes was reduced from sixteen to four. The new programme Basic and Translational Cancer Biology was established to improve cross fertilization between different focus areas. To do justice to the strength of the three original programmes, it was decided that they should continue as research lines under a larger umbrella. The three research lines of Programme 3 are:

- Tumour Hypoxia and Microenvironment

- Molecular Epigenetics
- Cancer Genetics and Tumour Phenotype

It should be noted that there is a strong cohesion with the other GROW research programmes as well, in particular with Programme 1 (Prevention) and Programme 2 (Innovative Cancer Diagnostics and Therapy). There are several examples of translational research in Programme 3 which have led to molecular epidemiological and clinical studies conducted by PIs in Programme 1 and 2. Two-way translational research (back and forth) is a strength of GROW and in particular of Programme 3. Furthermore, the collaboration between Programmes 1, 2 and 3 become evident in the future Maastricht Comprehensive Cancer Centre (Maastricht CCC), as described in paragraph 3.1.3. (See also Part A, paragraph 1.3).