



# 2018



# CRIG

CANCER RESEARCH INSTITUTE GHENT

# ANNUAL REPORT

# Chairman's Statement



CRIG is 2 years old! A child of this age would be called a toddler, but CRIG is not toddling at all. We are getting towards cruising altitude.

We are extremely grateful and proud of our accomplishments. We have grown by 10% in 2018 and are more decisive than ever. It also testifies that new researchers are committed to joining forces in our common battle against cancer. Only by teaming-up through multidisciplinary collaborations, I believe we will attain our goals. I invite you to browse through our annual report and amaze yourself of what we have achieved last year. However, there is no room for complacency. We need and will continue to stimulate and accelerate cancer research in Ghent.

Needless to say, I'm also looking forward to 2019. We want to see young and seasoned researchers working together and coming up with cunning research plans. We will also have steering committee elections, resulting in new members with fresh ideas, ready to boost CRIG further. We also plan to build partnerships with other cancer research institutes in Belgium and abroad, amongst others through recently acquired International Thematic Network funding from Ghent University. Furthermore, you can expect more and tailored communication with all our stakeholders, and CRIG branding beyond the borders of the founding institutes.

Finally, we want to express our sincere gratitude for all the support we received from collaborating partners, donations and actions for the benefit of cancer research, and all enthusiasm that keeps us highly motivated.



Prof. Jo Vandesompele  
on behalf of the steering committee

**CONTACT** | Pieter Rondou, CRIG coordinator • [CRIG@UGent.be](mailto:CRIG@UGent.be) • [www.crig.ugent.be](http://www.crig.ugent.be)  
Postal address: UZ-MRB1, C. Heymanslaan 10, 9000 Gent • +32 9 332 24 53

**IMAGE CREDITS** | Kimberly Verniers - Mieke Van Bockstal  
Christophe Hermans - Leyla Aerts - Tessa Kerre  
**DESIGN** | Niels Vandamme



# CRIG in a nutshell



The Cancer Research Institute Ghent stimulates and accelerates cancer research in Ghent, and comprises over 390 researchers from more than 70 research groups at Ghent University, Ghent University Hospital and VIB-UGent.

CRIG also joins forces with other research institutes, foundations & industrial partners, and reaches out to society. CRIG's mission is to stimulate fundamental, translational and clinical cancer research across expertise domains, towards more effective treatments and better survival of cancer patients.



“CRIG stimulates and accelerates  
cancer research in Ghent”

# CRIG 2018 in numbers

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390<sup>+</sup>  
researchers



3 partner  
institutions



research  
groups 70<sup>+</sup>



2.5 FTE in  
operational  
team



PhD theses 21



269  
A1 publications



young investigator  
proof-of-concept  
projects granted (103K €) 8



>70K € donations and  
legacies received



granted via UGent  
industrial research  
fund (IOF) projects

>450K €



>11M € external project  
funding acquired  
by CRIG researchers



valorization  
project income 1.8M €



9 patent  
applications



industrial  
partnerships 33



38 bilateral  
contracts



... CRIG unites 70+ research groups, 390+ researchers (>10% growth in 2018) from 3 partner institutions (UGent, UZ Gent and VIB-UGent) ... 2.5 full-time equivalents in operational committee at start 2019 ... 21 PhD theses defended by CRIG doctoral fellows ... 269 A1 publications (co-)authored by CRIG group leaders ... 8 young investigator proof-of-concept projects granted by CRIG for a total of 103 K EUR ... >70 K EUR donations and legacies received ... 40 cancer research projects (personal mandates excluded) – for >11 M EUR in total – have been granted to CRIG researchers by Kom op tegen Kanker (10 projects, >3.8 M EUR), Foundation against Cancer (14 projects, >4.1 M EUR) and Fund for Scientific Research (FWO Vlaanderen: 16 projects, >3.3 M EUR) ... Valorization realized through the UGent partners of the CRIG knowledge transfer committee: 450 K EUR granted via UGent industrial research fund (IOF) projects, -1.8 M EUR of valorization project income obtained, 9 patent applications filed, 1 technology licensed by UGent, 38 bilateral contracts with 33 companies, ... 5098 mentions in Altmetrics of CRIG publications in social and other media (of which 4672 on Twitter)



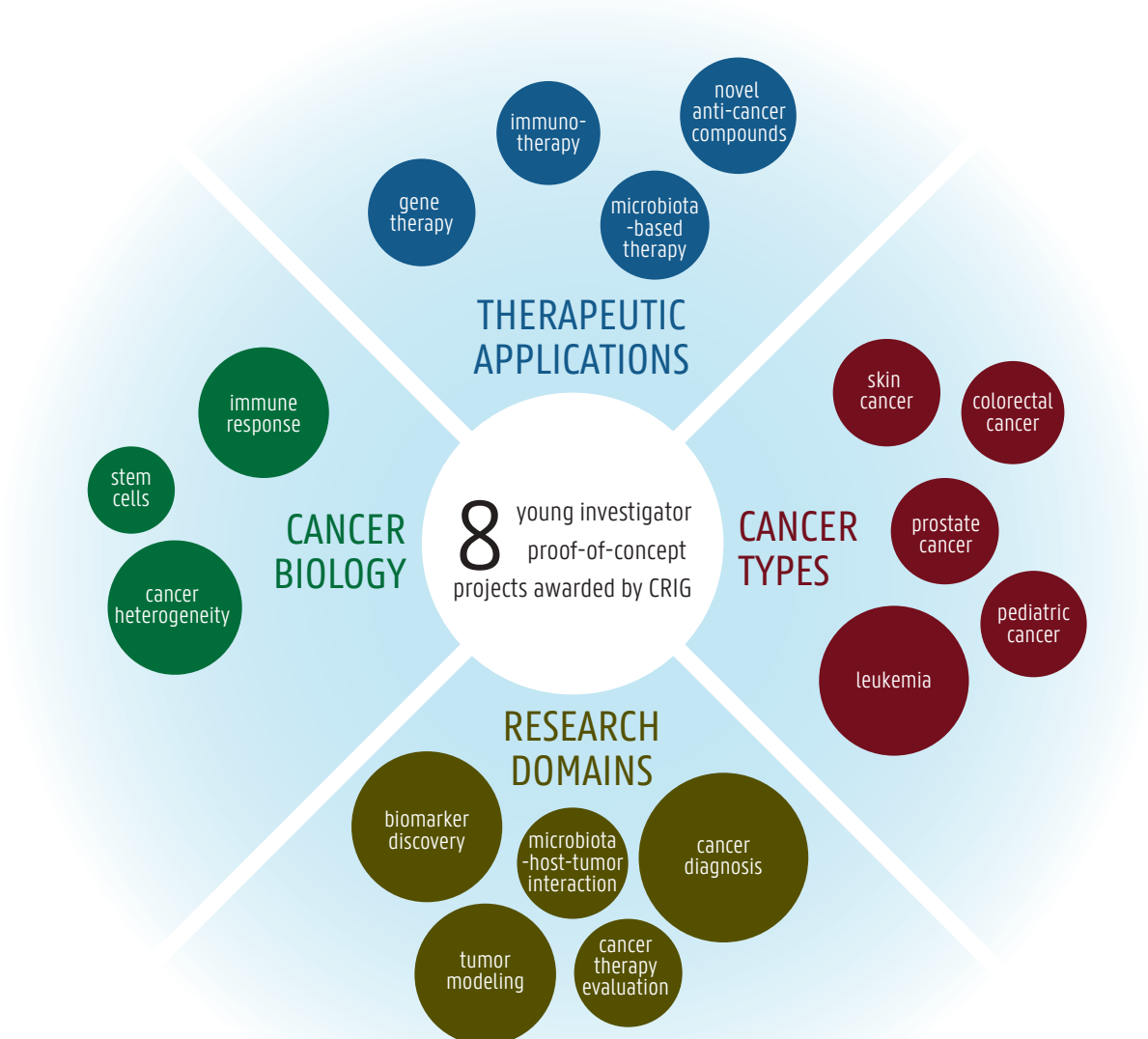
# Achievements in 2018



## Supporting innovative research projects by young investigators.

CRIG actively supports innovative cancer research in Ghent by awarding young investigator proof-of-concept (YIPOC) projects to postdoctoral fellows. The funding allocated for these projects is co-financed by CRIG and by vzw Kinderkankerfonds via a strategic partnership.

In 2018, CRIG awarded 8 projects, for a total of 103 000 EUR. With this funding, the awarded postdoctoral researchers are able to generate proof-of-concept results to increase the success rate of future external grant applications. Reports from the proof-of-concepts projects awarded by CRIG in 2017 have demonstrated a clear output and lever effect, including the acquisition of 2 postdoctoral fellow mandates and one research project awarded by FWO, and several high impact publications, in which data from CRIG proof-of-concept grants were included.



## Awarded young investigator proof-of-concept projects



**Dr. Bram De Wilde**

Non-invasive tissue of origin prediction for pediatric solid tumors using methylation profiling of circulating cell-free DNA



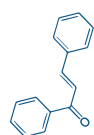
**Dr. Hetty Helsmoortel**

Extracellular RNA detection in liquid biopsies: towards a better diagnosis of prostate cancer patients



**Dr. Esther Hoste**

Investigating severe inflammation and aberrant stem cell proliferation in Otulin-deficient mouse epidermis through single-cell RNA-sequencing



**Dr. Sofie Peirs**

In vivo evaluation of a novel chalcone compound for the treatment of T-cell acute lymphoblastic leukemia



**Dr. Ionna Petta**

Study of microbiota-host interactions during colorectal cancer development using germfree and gnotobiotic mouse technology



**Dr. Joao Portela Catani**

Self-amplifying mRNA with gene silencing capacity as an innovative all-in-one device, simultaneously combining inhibition of immuno-suppressive pathways with cancer vaccination



**Dr. Sofie Van Gassen**

Development of a 28-color flow cytometry panel for immunophenotyping AML samples



**Dr. Pieter-Jan Volders**

Design of selected reaction monitoring (SRM) assays to detect novel micropeptides in cancer



“

“With support from my CRIG grant, I generated research results that very much helped me to get my postdoctoral mandate from FWO Vlaanderen!”

Dr. Elly Devlieghere - laureate YIPOC 2017

”

“

“I recently obtained a competitive project grant from FWO Vlaanderen. The project application was partly based on preliminary data obtained during my CRIG grant, so I am very grateful for the fruitful support!”

Prof. Dr. An Hendrix - laureate YIPOC 2017

”



## Stimulating collaboration through organizing symposia for researchers

Through the organization of various symposia, CRIG provides an opportunity for cancer researchers to stay at the forefront of cancer research, to meet fellow researchers and share research findings, and to start multidisciplinary collaborations to accelerate research.

28.02.2018

### OncoPoint symposium - 6th edition

CRIG's OncoPoint symposium is a yearly forum for cross-fertilization of cancer research at UGent, UZ Gent and VIB-UGent. More than 180 researchers and 12 sponsoring companies attended the 6th edition, that was co-organized by CRIG, ION (Immuno-Oncology Network) Gent, and the CEDAR-IC (Cell Death Activity Regulation in Inflammation and Cancer) network. In line with CRIG's historic expertise, the focus in 2018 was on immuno-oncology. Next to invited external speakers, CRIG cancer researchers presented their work via talks and posters.

15.05.2018

### Digital PCR mini-symposium

CRIG organized a mini-symposium on digital PCR, a trending technology amongst others in cancer research. Both international and local speakers provided a broad overview of the state of the art in digital PCR technology and its applications in cancer diagnosis and other research areas. The symposium was attended by more than 100 participants from different academic and public research centers as well as companies.

05.12.2018

### Single cell mini-symposium

To stimulate collaborations among teams that are interested in the booming field of single cell research, CRIG organized a single cell mini-symposium in Ghent. Next to exciting keynote lectures from top experts in the field, oral and poster presentations covered a broad range of approaches and technologies for single cell isolation and analysis available within CRIG, as well as downstream applications to reveal complex tumor biology at the single cell level. About 150 participants from different institutions and companies attended this successful symposium.

17.12.2018

### 2nd Connecting Expertise Event on 'Nanomedicine and advanced delivery'

Ghent has world-class expertise when it comes to designing nanomedicines and delivering complex molecules to cells or biological systems. The Connecting Expertise Event, organized by the CRIG Business Unit and supported by the Industrial Research Fund (IOF), brought together research groups with a need in the field of nanomedicine & advanced delivery and groups with innovative delivery technologies. Short pitches combined with speed-dating sessions stimulated interactions and new collaborations among the 50 participants. In 2019, a follow-up event on this topic is planned to stimulate interaction with interested industrial partners.





4 CRIG symposia  
~500 participants



8 keynote  
speakers



0€ registration cost  
for academic delegates  
thanks to generous sponsors and support by CRIG

symposia



## Educating cancer researchers

In 2018, CRIG organized for the first time its **Doctoral Schools specialist course on cancer**. The program was targeted to Ghent University doctoral fellows with different educational backgrounds and active in distinct cancer research disciplines. This educational course, lectured by CRIG experts, covered a broad variety of fundamental, translational and clinical cancer research insights, technologies and applications. As the course was very well-received by the attendants, a second edition starts in February 2019.



48 doctoral fellows  
5 UGent faculties



6 modules  
27 contact hours



24 CRIG lecturers



>95% recommend  
the course

doctoral schools specialist course

CRIG further supports the advanced education of young cancer researchers and specialists by organizing symposia (see above; 4 symposia organized in 2018) and by stimulating participation in educational events that are organized by individual CRIG research groups or partner organizations (in 2018, CRIG promoted more than 40 symposia, workshops, invited speaker seminars, etc.). Finally, the program 'Major in Cancer' within the Master of Sciences in Biomedical Sciences at Ghent University is lectured by various CRIG group leaders and coordinated by CRIG steering committee member Prof. Olivier De Wever.



## Valorizing and partnering with industry

### **Janssen Pharmaceutica nv, Ghent University and Ghent University Hospital prolonged their collaboration by signing the Innovation Charter (Aug 28, 2018)**

During the past years, Janssen Pharmaceutica, Ghent University and Ghent University Hospital established a close collaboration. Representatives from all parties identified common interests and complementary expertise, selected prioritized domains for collaboration and committed to deepen and broaden such collaborations by signing the Innovation Charter in August 2018. Oncology was selected as one of the innovation domains where CRIG and Janssen will join forces through a strategic partnership.

The CRIG Knowledge Transfer Committee consists of business developers from 3 UGent Industrial Research Fund (IOF) consortia (Biomarked, DISCOVERE, ChemTech Life Sciences), UZ (Health, innovation and research institute) and VIB, and is supported by a dedicated project manager. The Knowledge Transfer Committee's goal is to maximize the valorization impact of CRIG research and to facilitate the connection between CRIG researchers and industrial partners.

In 2018, the UGent partners in the CRIG knowledge transfer committee realized 38 bilateral contracts with 33 different companies. In total, ~1.8 million EUR of valorization project income was obtained, including an SBO project (1.16 million EUR) coordinated by CRIG steering committee member Prof. Geert Berx. This project focuses on pathways for novel therapies to treat colorectal cancer, and has 8 companies as part of the user group.

In 2018, the Ghent University Industrial Research Fund (IOF) granted ~450 K EUR to bring CRIG cancer research results from the R&D stage closer to the market:

- 1 project on flavonoid analogs for anti-invasive strategies (Stepstone project with promoters Prof. Chris Stevens, Prof. Marc Bracke)
- 1 project on development of a property gel for fat crafting, which could be used in reconstruction after breast cancer surgery (Advanced project, with promoters Prof. Sandra Van Vlierberghe and Prof. Phillip Blondeel, in collaboration with GATE - the Ghent Alliance for Tissue Engineering)
- the second phase of a project on novel microtubule stabilizing agents for anti-tumor strategies (Advanced project with promotor Prof. Olivier De Wever)
- the second phase of a leverage project to support the CRIG business unit for valorization of cancer projects and strengthening of the industrial collaboration (promoters: Dr. Daisy Flamez, Dr. Dominic De Groote, Dr. An Van Den Bulcke)

In 2018, 9 patent applications were filed and 5 technologies were under evaluation (IDF) for filing. Ghent University licensed a patent on the Galcer integrated liposome system for mRNA vaccines, developed in the lab of CRIG steering committee member Prof. Stefaan De Smedt, and secured an option for licensing cancer-specific RNA biomarkers (developed at the lab of Prof. Pieter Mestdagh). Two projects were facilitated towards spin-off incorporation in 2019.



## CRIG research(ers) in the spotlight

Numerous scientific articles on fundamental, translational and clinical cancer research studies are published each year by CRIG research teams in peer-reviewed international and often top ranked journals. For example, more than 250 A1 articles in the field of oncology were (co-)authored in 2018 by CRIG group leaders (detailed overview on <https://www.crig.ugent.be/en/crig-publications>). As demonstrated by significant research funding that was obtained by CRIG teams in 2018 (including > 11 M EUR granted by FWO, Stichting tegen Kanker & Kom op tegen Kanker for over 40 cancer research projects - personal mandates excluded), innovative and exciting future cancer research is warranted.

Several CRIG researchers were awarded in 2018 for their excellent research. Amongst others, **Prof. Pieter Van Vlierberghe (photo)** received a prestigious award by the Fund Baillet Latour for his research on acute T-cell leukemia that often affects children. **Prof. Piet Ost** received the AstraZeneca Foundation Award Oncology for his innovative approach in the treatment of prostate cancer, and **Dr. Lore Lapeire** received the Pfizer Oncology Award to implement multidisciplinary oncology consultations for adolescents and young adults with cancer in 4 hospitals in Ghent. Ghent University Hospital also received the first prize 'Zorgvinding 2018' from IN4CARE - and **Dr. Bert Boute** the Dyson Award - for the 'prone crawl breastboard' to optimize radiotherapy in cancer patients. **Prof. Tessa Kerre** received 2 science communication awards (KVA & Jonge Academie; EOS wetenschapsmagazine) for Immuno-T, the first motion comic on cancer immunotherapy, and also **Dr. Hetty Helmsmoortel** received a science communication award by 'De Maakbare Mens'.

Finally, we want to congratulate all CRIG researchers for their valuable contributions to cancer research in 2018, and their continuous efforts in the battle against cancer.





## Outreach to the patients and the general public

CRIG engages in providing relevant communication to the public about cancer and the latest breakthroughs in cancer research. In 2018, CRIG organized and participated in diverse events to communicate and interact with patients and the general public about cancer research and therapies.

### KANKERCONGRES 24.11.2018

#### *'Kanker, van onderzoek tot hoop'*

Our unique concept – a cancer conference in Dutch, accessible for everyone – attracted more than 400 participants, including patients and patient organizations, students, professionals (researchers, clinicians, care providers), companies and the general public. Experts shared their knowledge on cancer research, prevention, diagnosis and treatment. The program also included interactive meet-the-expert sessions and a panel debate with relevant stakeholders about the affordability of cancer treatment and patient care in the future. Several organizations were present at info stands to share relevant information with the participants. Kankercongres 2018 was organized by CRIG and Kankercentrum UZ Gent, vzw Beautiful After Breast Cancer, vzw Stop Darmkanker, and the Center for Oncological Research (UAntwerpen).

### CRIG WORKSHOP FOR CHILDREN 25.11.2018

#### *'Kanker behandelen: (g)een kinderspel' @ Dag van de Wetenschap*

In the context of 'Dag van de Wetenschap', CRIG organized a workshop for children – *'Kanker behandelen: (g)een kinderspel'*. The basic concepts of cancer and treatment were explained to small groups, and children enjoyed interactive learning about cancer by discovering research lab items, seeing cancer cells through a microscope and playing games that help understanding how different treatment options work.

### PRESENTATION 21.10.2018

#### Immuno-T at VIB Biotechdag and other events

Immuno-T, a story in motion about immunotherapy in cancer, is the brainchild of CRIG steering committee member Prof. Tessa Kerre, developed to explain to patients and their relatives as well as to the broad public how immunotherapy works in the battle against cancer (<http://Immuno-T.inmotion.care>). CRIG participated (in collaboration with vzw SuperNils) in VIB Biotechdag 2018 (Oct 21, Antwerp) with an interactive exhibition stand on Immuno-T. Immuno-T was also presented at other events, including Woow Wetenschapsfestival Gent, Dag van de Wetenschap, Digitale Doebeurs, and Festival Van de Gelijkheid.

### RUNNING AGAINST CANCER 05.05.2018

#### CRIG team at 'Levensloop'

CRIG joined 'Levensloop', an initiative by the Foundation against Cancer focusing on solidarity and fundraising in the battle against cancer. The CRIG team counted 39 enthusiastic runners and raised almost 1000 EUR. At the CRIG tent, fun and educational games for children were organized.



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Several CRIG researchers also actively engaged in science communication at different events and in the media (see [www.crig.ugent.be](http://www.crig.ugent.be) and our social media channels).

Finally, CRIG actively contributed to a comprehensive background dossier on cancer for the broad audience, published by VIB (<http://www.vib.be/nl/educatie/pages/dossier-kanker.aspx>).







## CRIG management

CRIG management consists of 3 committees in close contact with each other, to translate CRIG's mission into concrete action points.

### CRIG STEERING COMMITTEE

UGent • medicine & health sciences	prof. Jo Vandesompele
	prof. Tessa Kerre
	prof. Olivier De Wever
UGent • sciences	prof. Geert Berx
UGent • pharmaceutical sciences	prof. Stefaan De Smedt
UGent • veterinary medicine	prof. Niek Sanders
UZ Gent delegate	prof. Lieve Brochez
VIB delegate	prof. Peter Vandenabeele

### CRIG OPERATIONAL COMMITTEE

Coordinator	dr. Pieter Rondou
Project and communication manager	Eva De Smedt
Administrative assistant	An Rose

### KNOWLEDGE TRANSFER COMMITTEE

UGent	dr. Daisy Flamez
	dr. An Van Den Bulcke
	dr. Dominic De Groote
	dr. Cristina Pintucci
VIB	dr. Jan Staelens
UZ Gent	prof. Catherine Van Der Straeten
(Health, innovation and research institute)	dr. Lieve Nuytinck



The steering committee, consisting of 8 elected CRIG group leaders is responsible for the strategic and financial plan, and monitors all CRIG related initiatives.



The CRIG knowledge transfer committee supports CRIG researchers and their partners in setting up and managing collaborative innovation projects in oncology, and assists in intellectual property rights management, business development, R&D partnering, licensing & venturing and strategic research funding.



Under the direct supervision of the CRIG steering committee and its chairman, the operational committee is responsible for the daily management and the implementation of the strategic plan, such as the coordination and organization of CRIG events, follow up of cancer research activities and initiation of new projects within CRIG, as well as collaboration and communication with different stakeholders.





## Financials

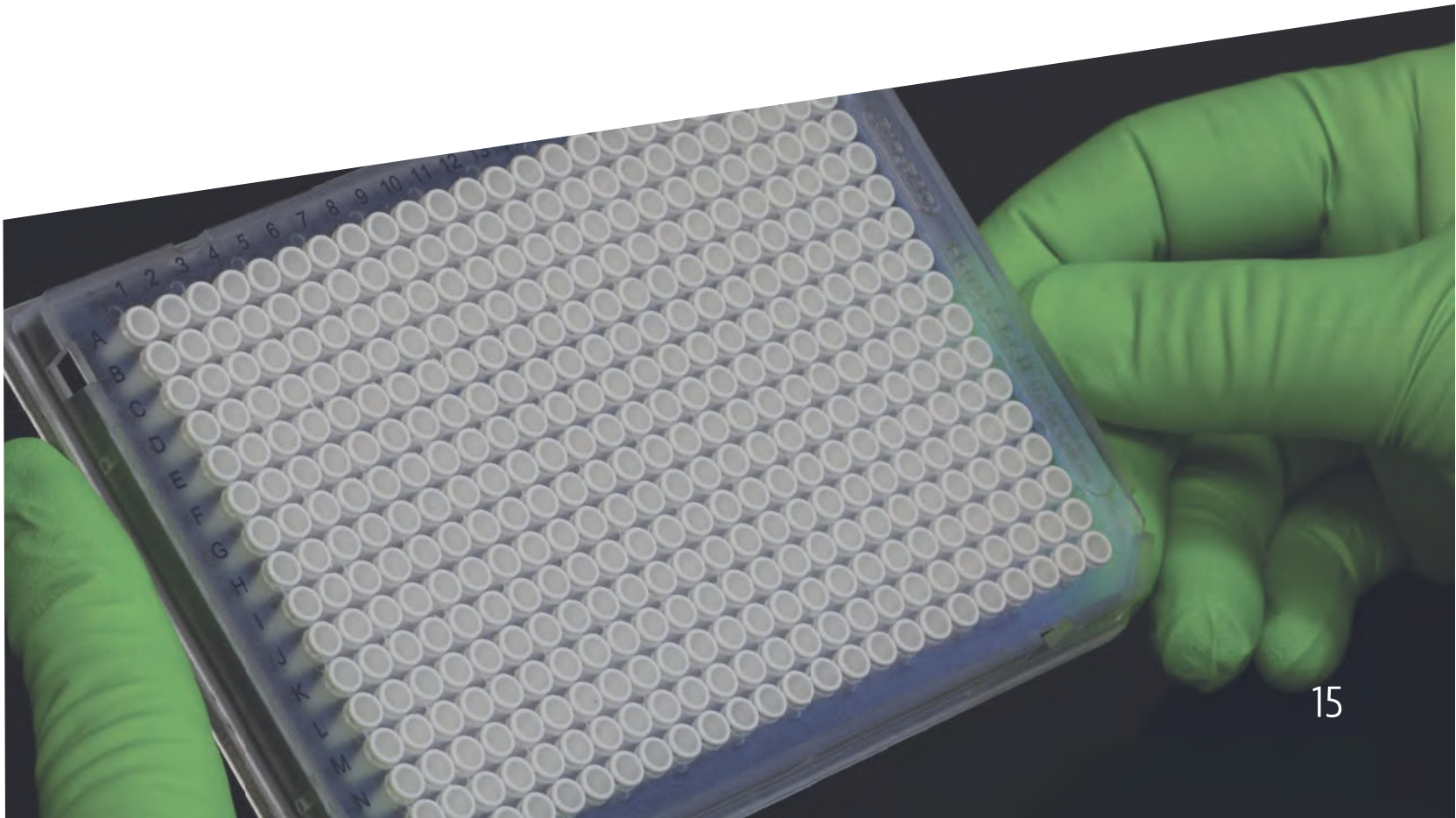
### INCOME

donations and legacies <sup>(1)</sup>	72 217 EUR
vzw Kinderkankerfonds	50 000 EUR
(to support young investigator proof-of-concept projects)	
company sponsoring for CRIG events <sup>(2)</sup>	19 573 EUR
UGent Doctoral Schools	2939 EUR
registration fees CRIG event <sup>(3)</sup>	683 EUR
lecturing fees	200 EUR

### EXPENSES

young investigator proof-of-concept grants	103 414 EUR
personnel <sup>(4)</sup>	23 965 EUR
organization of meetings, symposia, events <sup>(5)</sup>	15 479 EUR
website, IT, hardware, office, promo	1099 EUR

**(1)** all donations are integrally used for cancer research, including the support of the young investigator proof-of-concept research projects **(2)** OncoPoint, dPCR mini-symposium, single cell mini-symposium **(3)** fees only applied for non-academic participants at the dPCR and single cell mini-symposia **(4)** CRIG personnel was co-financed by 2 granted projects: (1) a UGent Industrial Research Fund (IOF) leverage project was granted to the CRIG business unit to co-finance the salary of the project manager (project duration 2 years, started Oct 2016); (2) a UGent project in the context of a university-wide expertise center was granted to finance the CRIG coordinator (full-time) for 2 years (started July 2017) **(5)** indicated expenses do not include co-financing by individual CRIG teams for specific events





www.crig.ugent.be



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## Special thanks to all our supporters

We wish to cordially thank all our supporters for the donations and warm actions that were organized for the benefit of CRIG! We wish to explicitly state that every single euro of each donation will only be used to support cancer research by CRIG researchers. Non-research activities are never paid by donations.

Finally, we also would like to thank our partners and sponsors for financial and other support that enabled us to realize CRIG's objectives in 2018.

You can **donate to CRIG** (with possible tax reduction) via transfer on "Fondsenwerving UGent" - **IBAN: BE26 3900 9658 0329** (BIC: BBRUBEBB) with reference "CRIG". End of 2018, vzw CRIG-fonds was founded to further support cancer research at Ghent University and Ghent University Hospital, and to inform the broad audience on the development and treatment of cancer and on cancer research. More information and possible ways to support cancer research at CRIG: <https://www.crig.ugent.be/en/donate>.