



Capacities/Research Potential
FP7-REGPOT-2012-2013-1

Project No. 316254

BASTION

“From Basic to Translational Research in Oncology”

Deliverable D3.6

**Report on research activities
of two experienced scientists and two IT professionals**

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Project duration:	42 M
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1. Introduction

Deliverable D3.6 corresponds to the task T3.3 in WP3.

A state-of-art bioinformatics unit has been envisioned within the BASTION project in order to provide support for Medical University of Warsaw (MUW) to become a leading research and clinical oncology center in Central Europe. To this end, one of the activities under WP3 carried out by the newly recruited leader of the bioinformatics group, Dr. Radoslaw Zagozdzon, was to recruit top-level scientists with international experience in data mining and analysis. He achieved this task by recruiting four new members of his team, listed below according to the chronology of recruitment:

1. Mr. Piotr Stawinski – IT professional No. 1
2. Dr. Paweł Gaj – Post-doc researcher No. 1
3. Dr. Malgorzata Bajor – Post-doc researcher No. 2
4. Mr. Slawomir Gruca – IT professional No. 2

Working space:

All recruited researchers have been provided with research and office space in a dedicated room within the Department of Immunology, MUW.

2. Activities of the recruited candidates under BASTION project

Each of the newly recruited members has profoundly contributed to the activities and outputs of the BASTION's bioinformatics group. Their individual achievements are summarized below:

2.1 IT professional no 1 (Piotr Stawinski)

Following his recruitment, Mr. Piotr Stawinski has mainly been responsible for the bioinformatics support for Next Generation Sequencing data acquired primarily in collaboration with the group of Prof. Rafal Ploski.

Publications	<ol style="list-style-type: none"> 1. Chlebowska J, Gaj P, Furs K, Sadowski R, Lazniewski M, Firczuk M, Muchowicz A, Sas-Nowosielska H, Sklepkiwicz P, Kolanowska M, Stawinski P, Klossowski S, Ostaszewski R, Giannopoulos K, Ploski R, Plewczynski D, Golab J, Nowis D. SK053 –a protein disulfide isomerase inhibitor induces differentiation of human acute myeloid leukemia cells (manuscript in preparation) 2. Truszkowska GT, Bilińska ZT, Kosińska J, Śleszycka J, Rydzanicz M, Sobieszcańska-Małek M, Franaszczyk M, Bilińska M, Stawiński P, Michalak E, Małek ŁA, Chmielewski P, Foss-Nieradko B,
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	<p>Machnicki MM, Stokłosa T, Ponińska J, Szumowski Ł, Grzybowski J, Piwoński J, Drygas W, Zieliński T, Płoski R. A study in Polish patients with cardiomyopathy emphasizes pathogenicity of phospholamban (PLN) mutations at amino acid position 9 and low penetrance of heterozygous null PLN mutations. <i>BMC Med Genet.</i> 2015 Apr ;16:21. doi: 10.1186/s12881-015-0167-0</p> <p>3. Ołdak M, Ścieżyńska A, Młynarski W, Borowiec M, Ruszkowska E, Szulborski K, Pollak A, Kosińska J, Mueller-Malesińska M, Stawiński P, Szaflik JP, Płoski R. Evidence against RAB40AL being the locus for Martin-Probst X-linked deafness-intellectual disability syndrome. <i>Hum Mutat.</i> 2014 Oct;35(10):1171-4.</p>
Participation in courses/trainings/workshops	<p>1. Cancer genetics for medical community Workshop organized by the Medical University of Warsaw in the project BASTION, Warsaw, Poland, 17 June 17, 2013</p> <p>2. Analysis of Next Generation Sequence Data Course For Complex and Mendelian Traits - Max Delbrück Center for Molecular Medicine, Berlin, Germany; June 23-27, 2014</p>
Publications from previous employment published within BASTION duration	<p>1. Prochenka A, Pokarowski P, Gasperowicz P, Kosińska J, Stawiński P, Zbieć-Piekarska R, Spólnicka M, Branicki W, Płoski R. A cautionary note on using binary calls for analysis of DNA methylation. <i>Bioinformatics.</i> 2015 May 1;31(9):1519-20. doi: 10.1093/bioinformatics/btv090.</p> <p>2. Kostera-Pruszczyk A, Kosinska J, Pollak A, Stawinski P, Walczak A, Wasilewska K, Potulska-Chromik A, Szczudlik P, Kaminska A, Ploski R. Exome sequencing reveals mutations in MFN2 and GDAP1 in severe Charcot-Marie-Tooth disease. <i>J Peripher Nerv Syst.</i> 2014 Sep;19(3):242-5. doi: 10.1111/jns.12088</p> <p>3. Chojnicka I, Fudalej S, Walczak A, Wasilewska K, Fudalej M, Stawiński P, Strawa K, Pawlak A, Wojnar M, Krajewski P, Płoski R. Inverse association between obesity predisposing FTO genotype and completed suicide. <i>PLoS One.</i> 2014 Sep 29;9(9):e108900. doi: 10.1371/journal.pone.0108900</p> <p>4. Ploski R, Pollak A, Müller S, Franaszczyk M, Michalak E, Kosinska J, Stawinski P, Spiewak M, Seggewiss H, Bilinska ZT. Does p.Q247X in TRIM63 cause human hypertrophic cardiomyopathy? <i>Circ Res.</i> 2014 Jan 17;114(2):e2-5. doi: 10.1161/CIRCRESAHA.114.302662</p>



Application for funding:

Grant number	Title	Function	Duration	Funding	Awarding institution
2013/11/N/NZ 2/02544	Novel computational approaches for analysis of the Next Generation Sequencing data: development of the indel calling algorithm	Project Leader	2014-2017	Project not granted	National Science Center

Envisioned career path

My employment under BASTION project expired on 31th Dec 2014. In the next few years, I am planning to complete my PhD in the field of Whole-Exome Sequencing data analysis for clinical purposes. I am also planning to publish current results in peer reviewed journal and make my data processing software available online for other researchers.

2.2. Postdoc – researcher No. 1 (Pawel Gaj)

In the course of the BASTION project, Dr Pawel Gaj has mainly been responsible for in silico analyses of the results generated within the project, provided by the collaborators or originating from the publically available datasets.

Publications	<ol style="list-style-type: none"> Chlebowska J, Gaj P, Furs K, Sadowski R, Lazniewski M, Firczuk M, Muchowicz A, Sas-Nowosielska H, Sklepkiwicz P, Kolanowska M, Stawinski P, Klossowski S, Ostaszewski R, Giannopoulos K, Ploski R, Plewczynski D, Golab J, Nowis D. SK053 –a protein disulfide isomerase inhibitor induces differentiation of human acute myeloid leukemia cells (manuscript in preparation) Trzeciecka A, Klossowski S, Bajor M, Zagozdzon R, Gaj P, Muchowicz A, Malinowska A, Czerwoniec A, Barankiewicz J, Domagala A, Chlebowska J, Prochorec-Sobieszek M, Winiarska M, Ostaszewski R, Golab J, Nowis D, Firczuk M. Dimeric peroxiredoxins are druggable targets in human Burkitt's lymphoma cell lines. Oncotarget (under revision) Gaj P, Zagozdzon R. In silico analysis of microRNA-510 as a potential oncomir in human breast cancer. Breast Cancer Res. 2014;16(2):403 O'Leary PC, Terrile M, Bajor M, Gaj P, Hennessy BT, Mills GB, Zagozdzon A, O'Connor DP, Brennan DJ, Connor K, Li J, Gonzalez-Angulo AM, Sun HD, Pu JX, Pontén F, Uhlén M, Jirström K, Nowis DA, Crown JP, Zagozdzon R, Gallagher
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	<p>WM. Peroxiredoxin-1 protects estrogen receptor α from oxidative stress-induced suppression and is a protein biomarker of favorable prognosis in breast cancer. <i>Breast Cancer Res.</i> 2014 Jul 10;16(4):R79. doi: 10.1186/bcr3691.</p> <p>5. Bojarczuk K, Siernicka M, Dwojak M, Bobrowicz M, Pyrzynska B, Gaj P, Karp M, Giannopoulos K, Efremov DG, Fauriat C, Golab J, Winiarska M. B-cell receptor pathway inhibitors affect CD20 levels and impair antitumor activity of anti-CD20 monoclonal antibodies. <i>Leukemia.</i> 2014 May;28(5):1163-7</p>
Book chapters	<p>1. Radoslaw Zagozdzon, Pawel Gaj. Modern methods of risk assessment and infections diagnosis in patients after transplantation. in 'Transplantologia praktyczna', vol. 5: 'Zakażenia w transplantologii'. Eds. Leszek Pączek, Krzysztof Mucha, Bartosz Foroniewicz; PWN, Warsaw 2013 [<i>in Polish</i>]</p> <p>2. Pawel Gaj, Radoslaw Zagozdzon. Modern biomarkers of allograft survival. in 'Transplantologia praktyczna', vol. 6: 'Wyniki odlegle transplantacji narządów'. Eds. Leszek Pączek, Krzysztof Mucha, Bartosz Foroniewicz; PWN, Warsaw 2013 [<i>in Polish</i>]</p>
Participation in the conferences	<p>„Translational Research in Oncology in New Member State Economies” (TRON) conference, 21-22 May 2015, Warsaw, Poland</p>
Poster presentation at the conferences	<p><i>Active:</i></p> <p>Pawel Gaj, Dominika Nowis, Stefano Volinia. Immunophenotypic identities of clinical samples have the potential to correlate with overall survival in cytogenetically normal AML patients. TRON, 21-22 May 2015, Warsaw, Poland</p> <p><i>Passive:</i></p> <p>1. Lech Trzeciak, Pawel Gaj, Agata Skórka, Paulina Nadkowska, Agnieszka Pollak, Joanna Kosińska, Rafał Płoski, Radosław Zagozdzon. Functional analysis of SMAD4 mutants in an in vitro system reveals upregulation of SMAD2, SMAD3 and SMAD4 by Myhre syndrome-associated variants. TRON, 21-22 May 2015, Warsaw, Poland</p> <p>2. Anna Trzeciecka, Szymon Klossowski, Malgorzata Bajor, Radoslaw Zagozdzon, Pawel Gaj, Angelika Muchowicz, Agata Malinowska, Anna Czerwonec, Joanna Barankiewicz, Antoni Domagala, Justyna Chlebowska, Monika Prochorec, Ryszard Ostaszewski, Jakub Golab, Dominika Nowis and Malgorzata Firczuk. Thiol-reactive peptiomimetic sk053 targets dimeric peroxiredoxins in human lymphoma cell lines. 15th</p>



	<p>International Conference on Oxidative Stress Reduction, Redox Homeostasis and Antioxidants; June 22-24, 2015, Paris, France (oral presentation by Malgorzata Firczuk)</p> <p>3. Justyna Chlebowska, Pawel Gaj, Piotr Stawiński, Michal Lazniewski, Malgorzata Firczuk, Karolina Furs, Radoslaw Sadowski, Szymon Klossowski. Ryszard Ostaszewski, Jakub Golab, Krzysztof Giannopoulos, Rafal Ploski, Dominika Nowis. SK053 an inhibitor of enzymes involved in allosteric disulfide bonds formation targets expression of histone genes and induces differentiation of human AML cells. 56th ASH Annual Meeting, 6th-9th December 2014, San Francisco, CA, USA</p> <p>4. Elzbieta Iskierka-Jazdzewska, Anna Stepien, Federico Canzian, Alessandro Martino, Daniele Campa, Angelika Stein, Malgorzata Krawczyk-Kulis, Malwina Rybicka, Slawomira Kyrzcz-Krzemien,, Aleksandra K. Butrym, Grzegorz Mazur, MD, Artur J. Jurczyszyn, Daria Zawirska, Norbert Grzasko, Waldemar Tomczak, Edyta Subocz, Marzena Watek, Marcin Pasiarski, Marcin Rymko, Malgorzata Calbecka, Agnieszka Druzd-Sitek, Jan Walewski, Marcin Kruszewski, Malgorzata Razny, Jan M Zaucha, Marek Dudzinski, Pawel Gaj, Krzysztof Warzocha, MD, Krzysztof Jamroziak,. Cereblon (CRBN) Gene Polymorphisms Predict Clinical Response and Progression-Free Survival in Multiple Myeloma Patients Treated with Lenalidomide: A Pharmacogenetic Study of Immense Consortium. 56th ASH Annual Meeting, 6th-9th December 2014, San Francisco, CA, USA</p> <p>5. Malgorzata Bajor, Patrick C. O’Leary, Pawel Gaj, Bryan T. Hennessy, Jakub Golab, William M. Gallagher, Radoslaw Zagozdzon. An antibody-based proteomic approach for identification of PRDX1 as a biomarker in estrogen receptor positive breast cancer. 10th Siena Meeting “From genome to proteome” 20 Years of Proteomics, August 31st – September 4th, 2014, Siena, Italy</p>
<p>Participation in courses/trainings/workshops</p>	<p>1. Cancer genetics for medical community Workshop organized by the Medical University of Warsaw in the project BASTION, Warsaw, Poland, 17 June 17, 2013.</p> <p>2. Analysis of Next Generation Sequence Data Course For Complex and Mendelian Traits - Max Delbrück Center for Molecular Medicine, Berlin, Germany; June 23-27, 2014</p> <p>3. Techniques in analysis of cancer vascular biology, 6th June</p>



	<p>2014, Warsaw, Poland</p> <ol style="list-style-type: none"> 4. Application of flow cytometry in molecular oncology, 15th-16th October 2014, Warsaw, Poland 5. Genome-wide methods in cancer genetics, 28th October 2014, Warsaw, Poland 6. Molecular Diagnostic in Cancer, 8th June 2015, Warsaw, Poland 7. Participation in courses offered by ICM of the University of Warsaw: <ul style="list-style-type: none"> 21-22.11.2013 „Jak to powiedzieć w R?” 12.3.2014 „Jak to wykreślić w R?” 13.3.2014 „Jak to zrobić lepiej w R?” 9.4.2014 „Wprowadzenie do obliczeń w programie MATLAB” 14.5.2014 „Podstawy Pythona”
International training (twinning)	<ol style="list-style-type: none"> 1. 3rd and 17th of July, 2013 Conway Institute, University College Dublin (UCD), Professor William Gallagher Research Group 2. September 17th - November 17th, 2014, University of Ferrara, Professor Stefano Volinia Research Group 3. February 2nd – April 4th, 2015, University of Ferrara, Professor Stefano Volinia Research Group
Patents	Pawel Gaj , Radoslaw Zagodzón. Stratification of B-cell lymphoma cases using a gene expression signature. European Patent Application No. EP14461567.1
Interviews	"Bioinformatyka stała się dziedziną niezbędną" Biotechnologia.pl 2014-01-09 http://biotechnologia.pl/biotechnologia/aktualnosci/bioinformatyka-stala-sie-dziedzina-niezbedna-rozmawiamy-z-bioinformatykami-projektu-bastion,13460
Publications from previous employment published within BASTION duration	<ol style="list-style-type: none"> 1. Noreen F, Rööslí M, Gaj P, Pietrzak J, Weis S, Urfer P, Regula J, Schär P, Truninger K. Modulation of age- and cancer-associated DNA methylation change in the healthy colon by aspirin and lifestyle. J Natl Cancer Inst. 2014 Jun 28;106(7). pii: dju161. doi: 10.1093/jnci/dju161. 2. Gil J, Gaj P, Misiak B, Ostrowski J, Karpinski P, Jarczyńska A, Kielan W, Sasiadek MM. CYP1A1 Ile462Val polymorphism and colorectal cancer risk in Polish patients. Med Oncol. 2014 Jul;31(7):72. doi: 10.1007/s12032-014-0072-y 3. Bielinska B, Gaj P, Kluska A, Nowakowska D, Balabas A, Dabrowska M, Niwinska A, Gruchota J, Zub R, Skasko E,



	Steffen J, Ostrowski J, Siedlecki JA. Association of the BRCA1 promoter polymorphism rs11655505 with the risk of familial breast and/or ovarian cancer. <i>Fam Cancer</i> . 2013 Dec;12(4):691-8. doi: 10.1007/s10689-013-9647-6
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Application for funding:

Grant number	Title	Function	Duration	Funding	Awarding institution
2013/11/D/NZ2/02769	Analysis and evaluation of significance of molecular differences between Burkitt's lymphoma and diffuse large B-cell lymphoma	Project Leader	2014-2017	Project not granted	National Science Center

Changes in the course of employment of Dr. Gaj

Following the initial period of 30 months, Dr. Gaj's employment has been extended until 31st August 2015. The argumentation presented to the BASTION's project's officer was as follows:

“During the course of the BASTION project Dr Pawel Gaj has been involved in a whole host of activities mainly concerning high throughput data analyses for experiments carried out on a genome-wide scale. Dr Gaj's work is now part of a collaborative effort of a number of different BASTION project research groups and the BASTION project collaborating partners running projects which take great advantage of Dr Gaj's expertise. Two of those projects recently entered a very advanced stage where statistical support is absolutely essential. First of those is a project led by Dr Tomasz Stoklosa with whom Dr Gaj is investigating genetic variation effects on disease progression in patients diagnosed with gastric cancer. The project is now in the final stage of data analysis carried out by Dr Gaj.

The other project is a result of a very successful collaboration between Dr Gaj and the group led by Professor Stefano Volinia, University of Ferrara, Italy; one of the international partners of the BASTION project. Being the leading author of the project initiated by Professor Volinia Dr Gaj has been the person responsible for the entire bioinformatics work and recently he has been drafting the manuscript of an article which will summarize the results.

Considering the essential role of Dr Pawel Gaj's expertise in a number of ongoing projects as well as his contribution to the published work of Medical University of Warsaw hereby we apply for extension of his employment within the framework of the BASTION project until August 31st.”



Envisioned career path

My future career path will focus on continuous development of my bioinformatics skills in terms of finding causative relationships and correlations between the molecular signatures of cancer tissues, the clinical outcomes and possible differences in efficacy of therapeutic agents. In a long perspective I am going to focus on studies taking advantage of emerging accessibility of the high-throughput -omics experimental techniques i.e. Next Generation Sequencing in various fields of biology. In parallel to the computational data analysis work, I am going to get involved in wet-lab activities elucidating significance of selected mutation events on the structure and function of the subject proteins. I am presently planning to become a member of the Department of Human Cancer Genetics, University of Warsaw. The new position is going to let me use all the experience gathered in the course of the research I have done under the BASTION Project. Working in the field of bioinformatics primarily related to the Next Generation Sequencing is very likely going to let me advance my research career to the next level. The employment has been so far planned for the next three years.

2.3. Postdoc – researcher No. 2 (Malgorzata Bajor)

During the BASTION project, the main activities of Dr. Bajor were related to generating and analyzing the biological and biomedical data, with the special emphasis put on the proteomics approach.

<p>Publications</p>	<ol style="list-style-type: none"> 1. Trzeciecka A, Klossowski S, Bajor M, Zagozdzon R, Gaj P, Muchowicz A, Malinowska A, Czerwoniec A, Barankiewicz J, Domagala A, Chlebowska J, Prochorec-Sobieszek M, Winiarska M, Ostaszewski R, Golab J, Nowis D, Firczuk M. Dimeric peroxiredoxins are druggable targets in human Burkitt's lymphoma cell lines. <i>Oncotarget</i> (under revision) 2. Siernicka M, Winiarska M, Bajor M, Firczuk M, Muchowicz A, Bobrowicz M, Fauriat C, Golab J, Olive D, Zagozdzon R. Adenanthin, a new inhibitor of thiol-dependent antioxidant enzymes, impairs the effector functions of human natural killer cells. <i>Immunology</i>. 2015 Jun 11. doi: 10.1111/imm.12494. 3. O'Leary PC, Terrile M, Bajor M, Gaj P, Hennessy BT, Mills GB, Zagozdzon A, O'Connor DP, Brennan DJ, Connor K, Li J, Gonzalez-Angulo AM, Sun HD, Pu JX, Pontén F, Uhlén M, Jirstrom K, Nowis DA, Crown JP, Zagozdzon R, Gallagher WM. Peroxiredoxin-1 protects estrogen receptor α from oxidative stress-induced suppression and is a protein biomarker of favorable prognosis in breast
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	<p>cancer. Breast Cancer Res. 2014 Jul 10;16(4):R79. doi: 10.1186/bcr3691.</p> <p>4. Mucha K, Bakun M, Jaźwiec R, Dadlez M, Florczak M, Bajor M, Gala K, Pączek L. ‘Complement components, proteolysis- related, and cell communication- related proteins detected in urine proteomics are associated with IgA nephropathy’ Pol Arch Med Wewn. 2014 Aug 7;124(7-8):380-6</p>
Participation in the conferences	<ol style="list-style-type: none">1. EMBO Conference, Cellular signalling and cancer therapy. 23-27 May 2014, Cavtat, Croatia2. San Antonio Breast Cancer Symposium, December 9th –13th, 2014, San Antonio, Texas, USA3. 10th Siena Meeting “From genome to proteome” 20 Years of Proteomics, August 31st – September 4th, 2014, Siena, Italy4. International Conference Translational Research in Oncology in New Member States Economies TRON, May 21-22, 2015, Warsaw, Poland5. ISANH Antioxidants World Congress 2015 – Institut Pasteur, June 22-24, 2015, Paris, France
Poster presentation at the conferences	<p>EMBO Conference: “Cellular signalling and cancer therapy” , 23-27 May 2014, Cavtat, Croatia Bajor M*, O’Leary PC, Zych AO, Golab J, Gallagher WM, Zagozdzon R <u>Poster title:</u> <i>Evaluation of adenanthin as an intracellular signaling modulator and potential therapeutic agent in estrogen receptor positive breast cancer</i></p> <p>10th Siena Meeting “From genome to proteome” 20 Years of Proteomics, August 31st – September 4th, 2014, Siena, Italy Bajor M*, O’Leary PC, Gaj P, Hennessy BT, Golab J, Gallagher WM, Zagozdzon R <u>Poster title:</u> <i>An antibody-based proteomic approach for identification of PRDX1 as a biomarker in estrogen receptor positive breast cancer</i></p> <p>ASH Annual Meeting 6-9 grudnia, 2014, San Francisco, CA, USA Firczuk M, Malinowska A, Trzeciecka A, Bajor M#, Chlebowska J, Ostaszewski R, Muchowicz A, Golab J, Zagozdzon R, Nowis D <u>Poster title:</u> <i>Peroxiredoxins-1 and 2 Affect Proliferation</i></p>



	<p><i>and Survival of Lymphoma Cells</i></p> <p>San Antonio Breast Cancer Symposium, December 9th –13th, 2014, San Antonio, Texas, USA Bajor M*, Zych AO, O’Leary PC, Czekalska A, Gallagher WM, Golab J Zagozdzon R <u>Poster title:</u> <i>Adenanthin, a new peroxiredoxin inhibitor, induces a switch between estrogen receptor alpha-mediated and Src/Akt-driven signaling in breast cancer cells.</i></p> <p>International Conference Translational Research in Oncology in New Member States Economies TRON, May 21-22, 2015, Warsaw, Poland 1. Bajor M*, Zych AO, O’Leary PC, Czekalska A, Gallagher WM, Golab J Zagozdzon R <u>Poster title:</u> <i>Adenanthin, a new peroxiredoxin inhibitor, induces a switch between estrogen receptor alpha-mediated and Akt-driven signaling in breast cancer cells</i></p> <p>2. Firczuk M, Trzeciecka A, Bajor M#, Muchowicz A, Zagozdzon R, Barankiewicz J, Domagala A, Klossowski S, Malinowska A, Chlebowska J, Ostaszewski R, Golab J, Nowis D <u>Poster title:</u> <i>Peroxiredoxins-1 and 2 affect proliferation and survival of lymphoma cells</i></p> <p>3. Zagozdzon, Siernicka M, Bajor M#, Firczuk M, Muchowicz A, Bobrowicz M, Fauriat C, Golab J, Olive D, Winiarska M <u>Poster title:</u> <i>Anti-cancer effector functions of human natural killer cells are hampered by adenanthin, a new inhibitor of thiol-dependent antioxidant enzymes</i></p> <p>ISANH Antioxidants World Congress 2015 – Institut Pasteur, June 22-24, 2015, Paris, France 1. Bajor M*, O’Leary PC, Zych AO, Gallagher WM, Golab J Zagozdzon R <u>Poster title:</u> <i>Role of thiol-dependent peroxiredoxins in regulation of Akt signaling in breast cancer</i> 2. Zagozdzon R., Siernicka M, Bajor M#, Firczuk M, Muchowicz A, Bobrowicz M, Fauriat C, Golab J, Olive D, Winiarska M <u>Poster title:</u> <i>Adenanthin, a new inhibitor of thiol-dependent antioxidant enzymes, deeply impairs the effector functions of human natural killer cells</i></p>
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	* as presenting author # as co-author
Participation in courses/trainings/workshops	<ol style="list-style-type: none"> 1. Cancer genetics for medical community Workshop organized by the Medical University of Warsaw in the project BASTION, Warsaw, Poland, 17 June 17, 2013. 2. Techniques in analysis of cancer vascular biology, 6th June 2014, Warsaw, Poland 3. Application of flow cytometry in molecular oncology, 15th-16th October 2014, Warsaw, Poland 4. Genome-wide methods in cancer genetics, 28th October 2014, Warsaw, Poland 5. Molecular Diagnostic in Cancer, 8th June 2015, Warsaw, Poland
International training (twinning)	<p>30th June -13th July 2014 - Prof. Bryan Hennessy Department of Oncology, Molecular Medicine Laboratories, Beaumont Hospital, Royal College of Surgeons, Dublin, Ireland</p> <p>6th - 20th May 2015(1st visit) - Prof. William M. Gallagher Cancer Biology and Therapeutics Lab, Conway Institute, University College Dublin, Dublin, Ireland</p> <p>1st - 31st July 2015 (2nd visit) - Prof. William M. Gallagher Cancer Biology and Therapeutics Lab, Conway Institute, University College Dublin, Dublin, Ireland</p>

Application for funding:

Grant number	Title	Function	Duration	Funding	Awarding institution
2013/11/D/NZ5/03173	Interrogating the mechanisms of function of peroxiredoxin 1 (PRDX1) in estrogen receptor-positive breast cancer	Project Leader	2014-2017	Project not granted	National Science Center
1M19/PM14/14/14	[Zbadanie mechanizmów regulujących proces S-nitrozylacji receptora estrogenowego w raku	Project Leader	2014	37 500 PLN	Medical University of Warsaw - Young Researcher



	piersi]				Grant
IP2014 001573	[“Zbadanie roli peroksyredoksyny 2 (PRDX 2) w raku piersi z dodatnią ekspresją receptora estrogenowego]	Project Leader	2014-2016	Project not granted	Ministry of Science and Higher Education
2015/17/B/NZ6/04254	The role of thiol-dependent antioxidant defense system in regulation of the natural killer cell activity	Project Leader	2016-2019	Undergoing evaluation	National Science Center

Other:

Awards	08.05.2015	2nd degree Award for the Best Publication from Polish Society of Internal Medicine http://tip.org.pl/artykul.html?aid=117906
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Changes in the course of employment of Dr. Bajor

Following the initial period of 30 months, Dr. Bajor’s employment has been extended until 31st August 2015. The argumentation presented to the BASTION’s project’s officer was as follows:

“Dr Malgorzata Bajor is working as an experienced research fellow at the bioinformatics group. Under the BASTION project, her scientific work is focused on the explaining the precise molecular mechanisms of actions, one of the most prevalent scavenging enzymes, PRDX1 in estrogen receptor-positive breast cancer. To carry out research tasks, a variety approaches including powerful quantitative techniques to study gene expression, genetic engineering of cells using lentiviral vectors, proteomics approaches to study the redox state in the cell, protein-protein interaction studies including bioinformatics data analysis have been used. Besides, during work under the BASTION project she has established fruitful collaboration with Laboratory of Prof. Bryan Hennessy at the Royal College of Surgeons in Dublin, Ireland where she had an opportunity to learn and use RPPA platform to study PRDX1 and PRDX2 protein expression in panel of different type cancer cell lines. Partial results of this project have been already published with Dr Bajor’s coauthorship in the Breast Cancer Research journal. Furthermore, Dr. Bajor is planning to visit a group of Prof. William Gallagher at UCD in Dublin, Ireland to perform additional research which can help to explain molecular consequences of rapid dysfunction of PRDX-related system in ER-positive breast cancer. This project is currently being continued, and contribution of Dr Bajor is highly important for the further conduct of this study. The same holds true for the another project of our scientific group, related to identification of new therapeutic targets in B-cell lymphomas. The manuscript with Dr Bajor coauthorship has just been submitted to the prestigious Oncogene journal and further continuation of this project is planned for next several months, with crucial contribution of Dr Bajor being envisaged. Therefore extension of Dr Bajor employment under the BASTION



project until August 31st will be of great importance for increasing the excellence of the BASTION programme results.”

Envisioned career path

Continuation of employment in Dept. of Immunology, WUM, based on funding from National Science Center. Key investigator in R. Zagodzón grant - The role for thiol-dependent antioxidant enzymes in estrogen receptor-positive breast cancer, 2014/13/B/NZ5/01354. My work is focused on the explaining the precise molecular mechanisms of actions, one of the most prevalent scavenging enzymes, PRDX1 in estrogen receptor-positive breast cancer. Moreover, I submitted a grant application to National Science Center, Poland, to support study on the role of thiol-dependent antioxidant defense system in regulation of the natural killer cell activity.

2.4. IT Professional No. 2 (Sławomir Gruca)

Research activity in BASTION project

During his employment under BASTION, Mr. Gruca has played a substantial role in creating informatics infrastructure support for the activities of the bioinformatics group, as well as the other research teams within the BASTION project. The created infrastructure support comprises of: computing cluster for large data sets, three multi-core workstations, adequate back-up storage and database management software and specialized software for data analysis and visualization. Additionally, Mr. Gruca’s efforts were essential for the creation of new digital image analysis facility at MUW, as described [Polish version only] in the following link: <http://bastion.wum.edu.pl/aktualnosci/pracownia-cyfrowej-patologii-warszawskiego-universytetu-medycznego/>

Book Chapters	Dariusz Plewczyński, Sławomir Gruca , Przemysław Szałaj, Krystian Gulik, Silviene Fabiana de Oliveira, Ankit Malhotra. Analysis of structural chromosome variants by Next Generation Sequencing methods. in Clinical Applications for Next Generation Sequencing, Eds. Urszula Demkow, Rafal Ploski; Elsevier [in preparation]
Poster presentation at the conferences	<i>Passive:</i> Robert Świder, Agnieszka Perkowska-Ptasińska. Anna Stachurska, Jadwiga Fabijańska-Mitek, Radosław Zagodzón, Sławomir Gruca , Jakub Gołąb, Marcin Poterski, Magdalena Durlik. Morphometry of the Epithelial-Mesenchymal Transition (EMT) in Subsequent Biopsies from Transplanted Kidney. 2015 American Transplant Congress, 2 nd -6 th May 2015, Philadelphia, PA, USA



Participation in courses/trainings/workshops	<ol style="list-style-type: none">1. "Jak to powiedzieć w R" [<i>How to say this in R</i>]; Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw, Warsaw, Poland, 21-22 Nov 2013;2. How to plot it in R? (Jak to wykreślić w R?)", ICM, 12.03.20143. „How to do it better in R? (Jak to zrobić lepiej w R?)”, ICM, 13.03.20144. „Python basics (Podstawy Pythona)”, ICM, 14.05.20145. “Bioinformatics fundamentals of Next Generation Sequencing (Bioinformatyczne podstawy sekwencjonowania nowej generacji)” training by “Ideas for Biology, Izabela Makałowska, Michał Szcześniak s.c.” company (ideas4biology.com), 26.09.20146. “NGS in the regulation of genes (NGS w badaniach regulacji genów)” training by “Ideas for Biology, Izabela Makałowska, Michał Szcześniak s.c.” company (ideas4biology.com), 27-28.09.2014
International training	<ol style="list-style-type: none">1. Visiting Researcher in Conway Institute, University College Dublin, Ireland - each person 2 weeks, 3-17 July 2013.2. Bioinformatics Group, Institute of Molecular and Cellular Biology, University of Leeds, Leeds, LS2 9JT, UK, October 5th – December 23rd, 2014

Changes in the course of employment of Mr. Gruca

Following the initial period of 30 months, Mr. Gruca's employment has been extended until 31st August 2015. The argumentation presented to the BASTION's project's officer was as follows:

“For the duration of his employment under the BASTION project, Mr Gruca has played a crucial role in establishing a new computing cluster in the Department of Immunology. Recently, during twinning with the University of Leeds, in November and December of 2014, Mr Slawomir Gruca has started two scientific collaborations. The first one is a research with Dr Peter Laslo and involves investigation of gene regulation events upon drug resistance acquirement during Chronic Myeloid Leukaemia (CML) treatment. Secondly, Mr Gruca has started a collaboration with the cancer biostatistics group of professor Tim Bishop, researching melanoma; Mr Gruca has been assigned to the analysis of WGS data of melanoma samples. Extension of participation in the BASTION project will enable Mr Sławomir Gruca visiting the University of Leeds again and will result in a high-impact outcome from the projects.



Moreover, extending Mr Gruca employment is also necessary for a continuous IT support for the laboratory and newly created computing cluster at Medical University of Warsaw.”

Envisioned career path

I will be searching for a new position following my BASTION employment and will also consider continuing collaboration with the Department of Immunology on a voluntary basis. I will strive to continue the research projects started with the University of Leeds.

3. Conclusions

By completion of a successful recruitment process and hiring two Postdocs and two IT Professionals we achieved Milestone 1 of BASTION project and established a new bioinformatics research group at MUW. For the duration of the BASTION project, the team has provided a broad support for the activities of other BASTION members, as well as the BioInfo researchers have been carrying out their own studies. The team has constantly been developing thanks to the funding support under the BASTION project as well as the funds from external sources. In the light of exceptional productivity of the group, the decision of further extending the employment under the BASTION project has been made for three team members. Indeed, the bioinformatics team has been highly productive: apart from the establishing a state-of-art computational infrastructure, their research efforts have so far resulted in authorships or co-authorships of numerous original and review publications, book chapters, one patent application and a number of meeting reports.

For further information regarding Dr. Zagozdzon’s team, please refer to BASTION’s website: <http://bastion.wum.edu.pl/en/zespole-badawczy-radoslaw-zagozdzone/>



4. Corresponding estimated/* budget

PERSONNEL, AND OTHER MAJOR DIRECT COST ITEMS FOR BENEFICIARY "1" FOR M19 –M36			
	Item description	Amount [EUR]	Explanations
WP3 Task 3.3	Personnel costs	227,182,42	Fees of the Co-leader (1,23 PM); salaries of 2 Postdocs - experienced researchers (36 PM) and 2 IT-Professionals (28 PM)
	Travel	0,00	
	Organization of events	0,00	
	Remaining direct costs	0,00	
TOTAL DIRECT WP3 COST		227,182.42	

/* - exact costs for M19-M36 will be presented in the IInd Period Report and Form C (October 2015)

Dr. Magdalena Winiarska, WP3 Leader
Dr. Radosław Zagozdzon, BioInfo Group Leader

Prof. Jakub Golab, BASTION Project Coordinator

Warsaw, August 2015