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(Epi)genetic characterization of chemotherapy response in ovarian cancer

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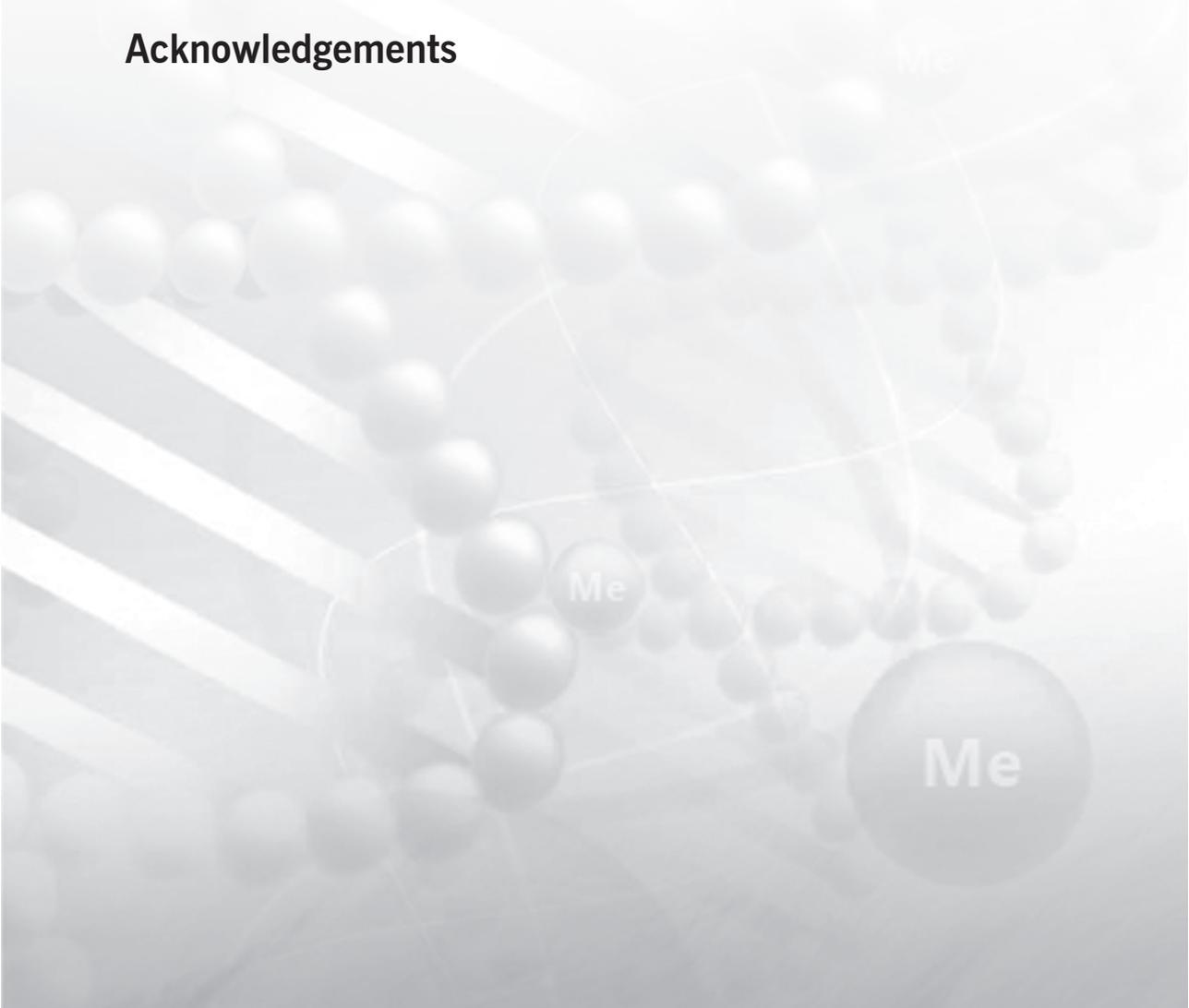
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Academic Credential

- 2011-2016 **PhD in Medical Sciences**, Department of Medical Oncology, University Medical Center Groningen, The Netherlands
- 2009-2011 **Masters in Medical and Pharmaceutical Sciences**, University of Groningen, The Netherlands
- 2005-2009 **Bachelor in Pharmacy**, Delhi Institute of Pharmaceutical Sciences and Research, University of Delhi, New Delhi, INDIA

Research Experience

- 2016-Present **Postdoctoral researcher**, Department of Medical Oncology, University Medical Center Groningen, The Netherlands
Supervisors: Prof. F.A.E. Kruijt and Prof. S. de Jong
Project: Targeting cancer stem cells in breast cancer model using novel antibody-drug conjugates
- 2011-2016 **PhD Scholar**, Department of Gynaecological Oncology, University Medical Center Groningen, The Netherlands
Supervisors: Prof. S. de Jong, Prof. A.G.J. van der Zee and Dr. G.B.A. Wisman
Project 1: Identification and functional validation of novel DNA methylation markers in relation to platinum-based chemotherapy in ovarian cancer
Project 2: Establishment of Patient-derived xenograft (PDX) mouse model for ovarian cancer and characterize them for their utility for novel target validation and treatment options
- 2009-2011 **Master's research Projects**, University of Groningen, The Netherlands
Project 1: Targeting of anti-tumor Interferon-gamma to Tumor Stromal Fibroblasts through PDGF receptor (9 months)
Supervisors: Prof. K.Poelstra and Dr. J. Prakash
Project 2: Effects of high fat-diet on renal endothelial dysfunction in Human CRP transgenic mice (6 months)
Supervisors: Prof. P. Heeringa and G.K. Yakala (PhD Student)

Academic Accomplishments/Awards

- 2015-16 Awarded **Jan Kornelis de Cock Stichting Grant 2015-16** with a financial support of 4,500 euros for pilot research study
- 2014-15 Awarded **Jan Kornelis de Cock Stichting Grant 2014-15** with a financial support of 4,000 euros for pilot research study
- 2014 Received **EACR Proffered Paper Award 2014** for elected **as best abstract** in "Imaging session" at European Association of Cancer Research Biennial Meeting 2014, Munich Germany
- 2013 Awarded **Obstetrics and Gynecology, UMCG Grant 2013** for pilot study with a financial support of 5,000 euros for research project
- 2012-2013 Awarded **Jan Kornelis de Cock Stichting Grant 2012-13** with a financial support of 3,000 euros for pilot research study
- 2009-2011 **Graduate School for Drug Exploration (GUIDE) Master's Scholarship**, University of Groningen, The Netherlands which included tuition fees and living cost
- 2009 National Institute of Pharmaceutical sciences and research (NIPER) Entrance Exam 2009, India (ranked in top 2% qualified students)
- 2005 Topper for attaining highest marks in Biology (98%) in Pre-university Exam, 2005 at all India level`

Presentations at Conferences/Seminars

- 10/2015 **Oral presentation**, *Evaluation of the ovarian cancer patient-derived xenograft (PDXs) methylome for cancer epigenetics studies*, 3rd Annual PhD student meeting, Cancer Research Center Groningen (CRCG), Groningen, The Netherlands
- 05/2015 **Invited short talk**, *Dual wavelength near-infrared fluorescence imaging of VEGF and IGF-1R in ovarian cancer patient-derived xenografts (PDX) model*, Glasgow-Groningen (G2) joint post-doc meeting 2015, at Glasgow, UK
- 11/2014 **Oral presentation**, *Genome-wide integrated epigenomics identifies FZD10 as novel modulator for platinum sensitivity in high grade serous ovarian cancer*, Tumor cell biology annual meeting, Dutch Cancer Society, Lunteren, The Netherlands
- 07/2014 **Invited short talk**, *Dual wavelength near-infrared fluorescence imaging of VEGF and IGF-1R in ovarian cancer patient-derived xenografts (PDX) model*, European Association of Cancer Research (EACR) biennial Meeting 2014, at Munich, Germany
- 10/2013 **Oral presentation**, Identification of FAM as novel epigenetic chemoresponse marker for platinum-based chemotherapy resistance in high grade serous ovarian cancer, 1st Annual PhD student meeting, Cancer Research Center Groningen (CRCG), Groningen, The Netherlands
- 04/2013 **Poster presentation**, *Identification of novel epigenetic biomarkers for platinum-based chemotherapy resistance in high grade serous ovarian cancer*, American Association for Cancer Research (AACR), Washington DC, USA

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1. Alkema NG*, **Tomar T***, Duiker EW, Meersma GJ, Klip HG, van der Zee AGJ, Wisman GBA, de Jong S; Biobanking of patient and patient-derived xenograft (PDX) ovarian tumour tissue: efficient preservation with low and high FCS based methods, *Scientific Reports*. 2015 Oct
2. Alkema NG*, **Tomar T***, van der Zee AGJ, Everts M, Meersma GJ, Hollema H, de Jong S, van Vugt MA*, Wisman GBA*; Checkpoint kinase 2 (Chk2) supports sensitivity to platinum-based treatment in high grade serous ovarian cancer; *Gynecol Oncol*. 2014 Jun;133(3):591-8
3. **Tomar T**, de Jong S, Alkema NG, Meersma GJ, Klip HG, van der Zee AGJ, Wisman GBA; *Genome-wide methylation profiling of ovarian cancer patient-derived xenograft (PDXs) treated with the demethylating agent decitabine identifies novel epigenetically regulated genes and pathways* (Resubmitted to *Genome Medicine*)
4. **Tomar T**, Alkema NG, Schreuder L, Meersma GJ, de Meyer T, van Criekinge W, Klip HG, Fiegl H, van Nieuwenhuysen E, Vergote I, Widschwendter M, Schuurin E, van der Zee AGJ, de Jong S* and Wisman GBA*; *Genome-wide integrated epigenomics analysis identifies FZD10 methylation for platinum sensitivity in ovarian cancer* (Submitted)
5. **Tomar T***, Alkema NG*, Liefers-Visser JAL, Terwisscha van Scheltinga AGT, Meersma GJ, Klip HG, Duiker EW, de Vries EGE, van der Zee AGJ, Wisman GBA, de Jong S; *Dual wavelength near-infrared fluorescence imaging of VEGF and IGF-1R in ovarian cancer patient-derived xenografts* (Manuscript in preparation)
6. **Tomar T***, de Jong S, van der Zee AGJ, Wisman GBA, Fehrmann RSN; *Functional genomic mRNA profiling identifies novel platinum chemoresponse-associated genes in high grade serous ovarian cancer* (Manuscript in preparation)

Other Publications

1. Joseph JV, Busschers E, van Roosmalen IA, **Tomar T**, Conroy S, Eggens-Meijer E, Pore MM, Balasubramanian V, Wagemakers M, Copray S, den Dunnen WFA, Kruyt FAE; *Differentiation of glioblastoma neurospheres leads to enhanced migration/invasion capacity that is associated with increased MMP9*, *PLoS One*. 2015 Dec 23;10(12):e0145393
2. Joseph JV, Conroy S, Pavlov K, Sontakke P, **Tomar T**, Eggens-Meijer E, Wagemakers M, Balasubramanian V, den Dunnen WFA, Kruyt FAE; *Hypoxia enhances migration/invasion in glioblastoma by promoting a mesenchymal shift mediated by the HIF1 α -ZEB1 axis*, *Cancer Lett*. 2015 Apr 1;359(1):107-16.
4. Joseph JV, **Tomar T***, Conroy S*, Eggens-Meijer E, Bhat K, Copray S, Walenkamp AM, Boddeke E, Balasubramanian V, Wagemakers M, den Dunnen WF, Kruyt FA; *TGF- β is an inducer of ZEB1-dependent mesenchymal transdifferentiation in glioblastoma that is associated with tumor invasion*, *Cell Death Dis*. 2014 Oct 2;5:e1443
5. Bansal R, **Tomar T**, Ostman A, Poelstra K, Prakash J; *Selective targeting of interferon gamma to stromal fibroblasts and pericytes as a novel therapeutic approach to inhibit angiogenesis and tumor growth*, *Mol Cancer Ther*. 2012 Nov;11(11):2419-28

* Equal contribution

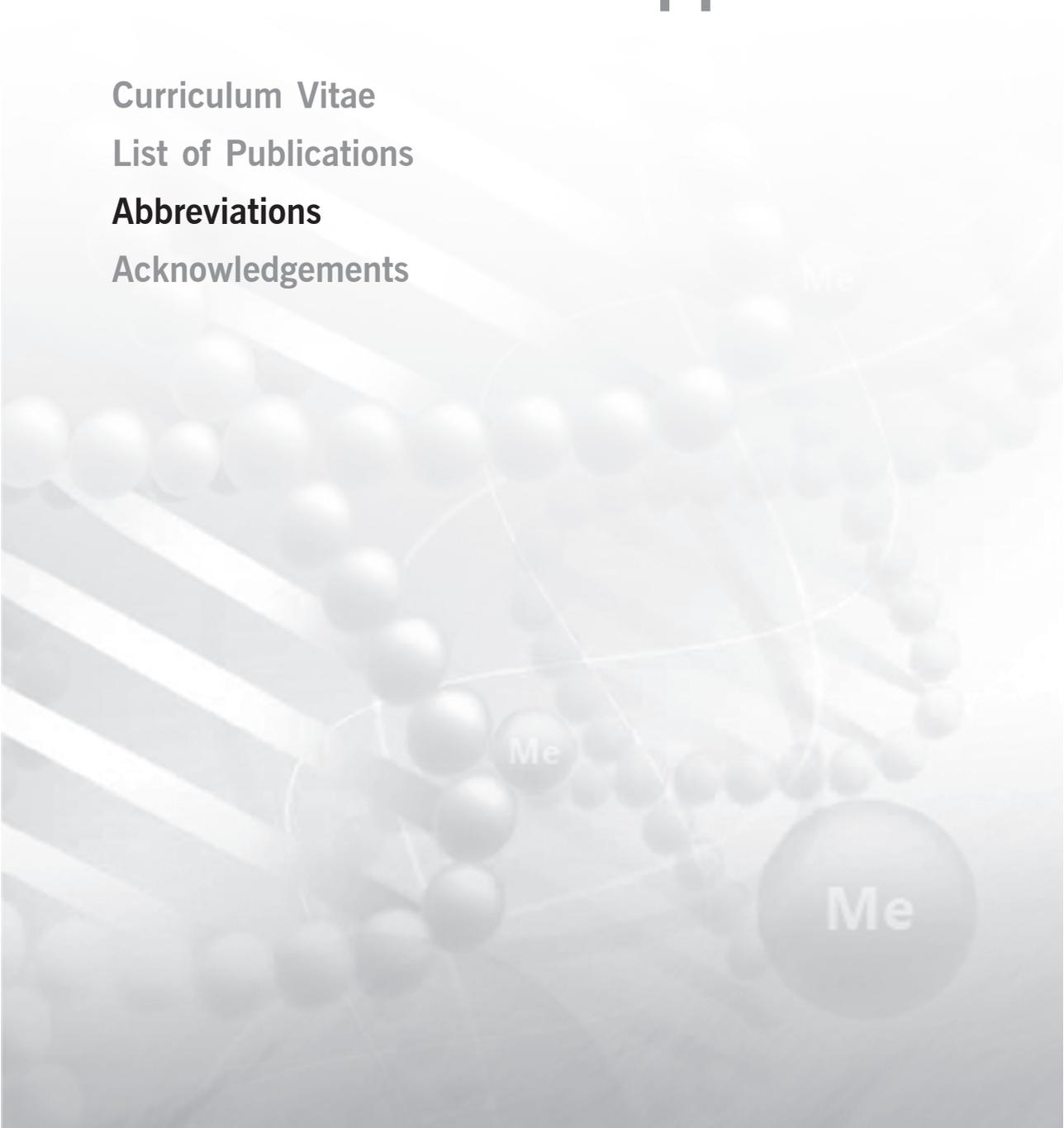
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AOCS	Australian Ovarian Cancer Society
ASCO	American Association of Clinical Oncology
ATM	Ataxia telangiectasia mutated
AUC	Area under the curve
AZA	5-azacytidine
BMQ	Beta-mixture quantile
CDXs	Ctcs-derived xenografts
Chk2	Checkpoint kinase 2
CIMP	Cpg island methylation phenotype
CNAs	Copy number alterations
CNL-index	Copy number load-index
CpG	Cytosine precedes guanine
CR	Complete response
CTCs	Circulating tumor cells
DAC	Decitabine (5-Aza-2'-deoxycytidine)
DAVID	Database for annotation, visualization and integrated discovery
DDR	DNA damage response
DMH	Differentially methylated hybridization
DMRs	Differentially methylated regions
DMSO	Dimethyl sulfoxide
DNMTi	DNA methyltransferase inhibitors
DNMTs	DNA methyltransferases
DSS	Disease-specific survival
EGF	Epidermal growth factor
ELISA	Enzyme-linked immunosorbent assay
EOC	Epithelial ovarian cancer
ER	Estrogen receptor
FACS	Fluorescence-activated cell sorting
FCS	Fetal calf serum
FGmRNA	Functional genomic mRNA
FIGO	International Federation of Gynecology and Obstetrics
GCSF	Granulocyte colony-stimulating factor
GEMMs	Genetically engineered mouse models
GeneMANIA	Gene multiple association network integration algorithm
GO	Gene ontology
GOBP	Gene ontology biological processes
GOG	Gynecologic Oncology Group
H&E	Hematoxylin & eosin
HEK293T	Human embryonic 293T kidney cells
HGSOC	High grade serous ovarian cancer
HR	Homologous recombination
HR	Hazard ratio
HSCs	Hematopoietic stem cells
i.v.	Intravenous
ICGC	International cancer genome consortium
IGF-1R	Insulin growth factor-1 receptor
IgG	Immunoglobulin G
KEGG	Kyoto encyclopedia of genes and genomes
LMP	Low malignant potential or borderline ovarian cancers

LOH	Loss of heterozygosity
MAPK	Mitogen-activated protein kinase
MBD	Methyl binding domain
MDS	Myelodysplastic syndrome
MEK	Mitogen-activated protein kinase
MethylCap-seq	Methylation-enriched next generation sequencing
MMR	Mismatch repair
MPER	Mammalian protein extraction reagent
MSP	Methylation specific PCR
mTOR	Mammalian target of rapamycin
MTT	3-(4,5-dimethylthiazol-2-yl) 2,5-diphenyltetrazolium bromide
NE	Not evaluable
NER	Nucleotide excision repair
NF κ B	Nuclear factor κ -light-chain-enhancer of activated B cell
NIRF	Near-infrared fluorescence
OR	Odds ratio
OS	Overall survival
PBMCs	Peripheral blood mononuclear cells
PBS	Phosphate-buffered saline
PCA	Principal Component Analysis
PCqc	First principal component
PCR	Polymerase chain reaction
PCT	PDX clinical trial
PD	Progressive disease
PDXs	Patient-derived xenografts
PFS	Progression free survival
PR	Partial response
PR	Progesterone receptor
pRS	Pretrouser
PVDF	Polyvinylidene difluoride
RECIST	Response evaluation criteria in solid tumors
REMARK	Reporting recommendations for tumor marker prognostic studies
REVIGO	Reduce + visual gene ontology
RT-qPCR	Reverse transcriptase quantitative PCR
s.c.	Subcutaneous
SCNAs	Somatic copy number alterations
SD	Stable diseases
SNP	Single nucleotide polymorphism
TCGA	The cancer genome atlas
TGFbeta	Transforming growth factor beta
TMA	Tissue microarrays
UMCG	University Medical Center Groningen
VEGF	Vascular endothelial growth factor
WebGestalt	Web-based gene set analysis toolkit

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(Tushar Tomar)