

Curriculum Vitae

Personal information

First name / Surname **Artem Smirnov**
Address Via Montpellier 1, 00133 Rome (RM)
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E-mail artem.smirnov@uniroma2.it
PEC artem.smirnov@pec.it
Nationality Russian
Date of birth 23 May 1992
Gender Male

Research area Biochemistry and Molecular Biology

Scientific interests My research activity has been mainly focused on the understanding of molecular mechanisms of cellular homeostasis and differentiation, as well as alteration of these pathways in tumours. Specifically, I have been studying the role p53 family of proteins in epithelial homeostasis and epithelial cancer tumorigenesis.

Education

Date 2017
Title of qualification awarded **PhD in Biochemistry & Molecular Biology**
University or Institution University of Rome "Tor Vergata" (Rome, Italy)
Thesis title ZNF185 is a novel target of p63 and p53 involved in keratinocyte differentiation and DNA
Date 2015
Title of qualification awarded **MSc in Biotechnology**
University or Institution St. Petersburg Institute of Technology (St. Petersburg, Russia)
GPA Major GPA: 5.0/5.0; Overall GPA: 5.0/5.0 **cum laude**
Date 2013
Title of qualification awarded **BSc in Chemical Technology and Biotechnology**
University or Institution St. Petersburg Institute of Technology (St. Petersburg, Russia)
GPA Overall GPA: 4.8/5.0

National Scientific Qualification National Scientific Qualification for associate professorship in Molecular Biology (BIOS-08A)
Valid dal **06/12/2023** al **06/12/2034**

Research experience

Dates 2024-present
Position held **Assistant professor in molecular biology (tenure-track)**
Research topic p63 in urothelial cancer
Head of the laboratory | Institution Professor Eleonora Candi | University of Rome (Rome, Italy)
Dates 2022-2024
Position held **Junior Researcher (RTDa)**
Research topic p63 in urothelial cancer
Head of the laboratory | Institution Professor Eleonora Candi | University of Rome (Rome, Italy)
Dates 2019-2022
Position held **Postdoctoral researcher**
Research topic p53 in EBV-associated epithelial cancer
Head of the laboratory | Institution Professor Xin Lu | University of Oxford (Oxford, UK)

Dates	2017-2018
Position held	Postdoctoral researcher
Research topic	p53 in squamous cell carcinoma
Head of the laboratory Institution	Professor Gerry Melino University of Rome "Tor Vergata" (Rome, Italy)
Dates	2014-2017
Position held	PhD student
Research topic	p53&p63 in epithelial biology
Head of the laboratory Institution	Professor Eleonora Candi University of Rome "Tor Vergata" (Rome, Italy)
Dates	2013-2014
Position held	BSc and MSc student
Research topic	Cancer therapy via p53 reactivation
Head of the laboratory Institution	Professor Nick Barlev St. Petersburg Institute of Technology (St. Petersburg, Russia)
Dates	2012-2013
Position held	BSc student
Research topic	Visualisation of p53 in tumour cells
Head of the laboratory Institution	Professor Nick Barlev St. Petersburg Institute of Technology (St. Petersburg, Russia)
Skills and competences	
Mother tongue	Russian
Other languages	English (fluent), Italian (fluent), Spanish (intermediate)
Research techniques	DNA purification, preparation and electrophoresis, molecular cloning, PCR, ChIP, luciferase assay RNA purification, preparation and electrophoresis, RT-PCR, qPCR Protein electrophoresis and western blotting, co-immunoprecipitation, proximity ligation assay Human tumour and primary cell culture work, RNAi and DNA transfection <i>in vitro</i> Preparation and analysis of samples by FACS, cell sorting Human samples processing, IHC on Fr/FFPE human tissue sections, ICC/IF and confocal microscopy; High-throughput screening of therapeutic compounds <i>in vitro</i> ; Basics of animal work (mouse) and tumour xenograft models Basics of analysis of genomics, proteomics, and transcriptomics processed data Multi-omics data visualisation in R and genome browsers
Computer skills	MS Word, Excel, PowerPoint Adobe Illustrator, Photoshop, InDesign GraphPad, FlowJo, R
Editorial experience	Editorial Board member for <i>Discover Oncology</i> Peer reviewer for international journals: <i>Cell Cycle</i> , <i>Molecular Oncology</i> , <i>Cell Death & Differentiation</i> , <i>Cell Death & Disease</i> , <i>Cell Death Discovery</i> , and <i>FEBS journal</i>
Learned Societies	Royal society of Biology (LONDON) – Member (MRSB) since 2022 Biochemical Society (LONDON) – ECR Member since 2022 Società Italiana di Biofisica e Biologia Molecolare (ROME) – Junior Member since 2023
Teaching experience	
<i>11/2023-present</i>	Supervision of one MSc student University of Rome "Tor Vergata"
<i>10/2023-01/2024</i>	Lectures on Molecular Biology for MSc students (Medical Biotechnologies) (2 CFU) University of Rome "Tor Vergata"
<i>05/2023-present</i>	Supervision of one PhD student University of Rome "Tor Vergata"
<i>04/2023-05/2023</i>	Lectures on Nutrigenomics (Farmacy) (0.5 CFU) University of Rome "Tor Vergata"

04/2023	Lecture on Research and Development of Cosmetics for Master I livello in "Nutrizione e Cosmesi" (4h) University of Rome "Tor Vergata"
03/2023	Lectures on Transcriptomics for Master II livello in "Nutrizione Personalizzata" (6h) University of Rome "Tor Vergata"
10/2022-01/2023	Lectures on Molecular Biology for MSc students (Medical Biotechnologies) (2 CFU) University of Rome "Tor Vergata"
09-10/2021	Supervision of one PhD student University of Oxford
05-06/2019	Supervision of two MSc students University of Oxford
08/02 – 23/02/2019	Lectures on "Meccanismi molecolari di morte cellulare", Master I livello in "Nutrizione e Cosmesi" University of Rome
19/01/2017	Lecture on "Ruolo della proteina-oncosoppressore p53 nel cancro" for MSc students (Medical Biotechnologies) University of Rome
2016-2017	Supervision of one MSc student University of Rome
Awards	09/2014 Scholarship of the President of Russian Federation for undergraduate students
Courses	02/2024 Pisa, IT School on super-resolution microscopy
	07/2021 Oxford, UK Introduction to Bioinformatics at the CCB
	03/2020 Oxford, UK Experimental design and Statistics in Preclinical Research: the Good, the Bad and the Ugly
	01/2020 Oxford, UK Research techniques day
	07/2019 Oxford, UK Oxford FELASA accredited course 030/10 for carrying out procedures on animals (Function
	07/2019 Oxford, UK Animals (Scientific Procedures) Act 1986: Personal License Category B training Course
	06/2019 Oxford, UK R: Data handling
	05/2019 Oxford, UK R: Kick-off
	10/2017 Rome, Italy Corso per l'accesso all'utilizzo delle strutture di servizio alla sperimentazione animale
Publications	Published 29 papers, including: 1 <u>Advanced Science</u> (IF 14.3), 1 <u>Nat Comms</u> (IF 14.7), 1 <u>Cell Death & Differ</u> (IF 13.7), 1 <u>Cell Reports</u> (IF 7.5), 1 <u>EMBO Rep</u> (IF 6.5), 1 <u>Cell Death & Dis</u> (IF 8.1), 1 <u>Oncogene</u> (IF 6.9), 2 <u>Mol Oncology</u> (IF 5.0), 1 <u>Expert Systems with Applications</u> (IF 7.5), 4 <u>Cell Death Discovery</u> (IF 6.1), 1 <u>Viruses</u> (3.8), 2 <u>Aging</u> (IF 3.9), 1 <u>The FEBS journal</u> (5.5), 3 <u>Biology Direct</u> (5.7), 2 <u>Int J of Mol Sci</u> (IF 4.9), 1 <u>Cell Cycle</u> (IF 3.4), 1 <u>J Gen Virol</u> (IF 3.6), 2 <u>Biochem Biophys Res Comms</u> (IF 2.5), 1 <u>Europ J of Dermat</u> (IF 2.0), 1 <u>Int J of Lower Extreme Wounds</u> (IF 1.5) First/co-first author – 12 papers (41%) H-index = 11 (source: Scopus) Citations = 816 (source: Scopus) Cumulative IF = 173 (source: WoS)
Research articles and reviews	Piro M.C., Pecorari R., Smirnov A. , Cappello A., Foffi E., Lena A.M., Shi Y., Melino G., Candi E. p63 affects distinct metabolic pathways during keratinocyte senescence, evaluated by metabolomic profile and gene expression analysis. (2024). <u>Cell Death & Disease</u> . In press. Croce D., Smirnov A. , Tiburzi L., Travaglini S., Costa R., Calabrese A., Basili R., Levaldi Ghiron N., Melino G. AI-driven transcriptomic encoders: From explainable models to accurate, sample-independent cancer diagnostics. (2024) <u>Expert Systems with Applications</u> . (254) 125126.

Giovannini* S., **Smirnov* A.**, Concetti* L., Scimeca M., Mauriello A., Bischof J., Rovella V., Melino G., Buonomo C.O., Candi E., Bernassola F. A comprehensive molecular characterization of a claudin-low luminal B breast tumor (2024) *Biology Direct*. *contributed equally

Giovannini S., Li Y., Pecorari R., Fierro C., Fiorilli C., Corigliano F., Moriconi V., Zhou J., De Antoni A., **Smirnov A.**, Rinalducci S., Timperio A.M., Agostini M., Zhang J., Shi Y., Candi E., Melino G., Bernassola F. Thioredoxin-interacting protein (TXNIP) is a substrate of the NEDD4-like E3 ubiquitin-protein ligase WWP1 in cellular redox state regulation of acute myeloid leukemia cells. (2024) *Molecular Oncology*.

Smirnov A., Lena A.M., Tosetti G., Yang X., Cappello A., Citterich M.H., Melino G., Candi E. Epigenetic priming of an epithelial enhancer by p63 and CTCF controls expression of a skin-restricted gene XP33. (2023) *Cell Death Discovery*, 9 (1), 446.

Cappello A., Tosetti G., **Smirnov A.**, Ganini C., Yang X., Shi Y., Wang Y., Melino G., Bernassola F., Candi E. p63 orchestrates serine and one carbon metabolism enzymes expression in head and neck cancer. (2023) *Biology Direct*, 18 (1), 73.

Yang X., **Smirnov A.**, Buonomo O.C., Mauriello A., Shi Y., Bischof J., Woodsmith J., Bove P., Rovella V., Scimeca M., Sica G., Tisone G., Wang Y., Servadei F., Melino G., Candi E., Bernassola F. A primary luminal/HER2 negative breast cancer patient with mismatch repair deficiency. (2023) *Cell Death Discovery*, 9 (1), 365.

Han Y., Rovella V., **Smirnov A.**, Buonomo O.C., Mauriello A., Perretta T., Shi Y., Woodsmith J., Bischof J., Bove P., Juhl H., Scimeca M., Sica G., Tisone G., Wang Y., Giacobbi E., Materazzo M., Melino G., Candi E., Bernassola F. A BRCA2 germline mutation and high expression of immune checkpoints in a TNBC patient. (2023) *Cell Death Discovery*, 9 (1), 370.

Yang X., Zong C., Feng C., Zhang C., **Smirnov A.**, Sun G., Shao C., Zhang L., Hou X., Liu W., Meng Y., Zhang L., Shao C., Wei L., Melino G., Shi Y. Hippo Pathway Activation in Aged Mesenchymal Stem Cells Contributes to the Dysregulation of Hepatic Inflammation in Aged Mice. (2023) *Advanced Science*, 10 (27), 2300424.

Smirnov A., Magri A, Lotz R, Han X., Yin C., Harris M., Osterburg C., Dötsch V., McKeating J.A., Lu X. ASPP2 binds to hepatitis C virus NS5A protein via an SH3 domain/PxxP motif-mediated interaction and potentiates infection. (2023) *Journal of General Virology*, 104 (9), 001895.

Smirnov A. Melino G and Candi E. Gene expression in organoids: an expanding horizon. *Biology Direct*. 2023. 18.

Smirnov A. and Candi E. Take a breath: oxygen sensing of epidermal differentiation. *The FEBS Journal*. 2023.

Al Moussawi* K, Chung* K, Carroll* TM, Osterburg* C, **Smirnov* A.** Lotz R, Miller P, Dedeic Z, Zhong S, Oti M, Kouwenhoven EN, Asher R, Goldin R, Tellier M, Murphy S, Zhou H, Dotsch V, Lu X. Mutant Ras and inflammation-driven skin tumorigenesis is suppressed via a JNK-iASPP-AP1 axis. *Cell Reports*. 2022. 41. *contributed equally

Barbaglia MN, Harris JM, **Smirnov A.** Burlone ME, Rigamonti C, Pirisi M, Minisini R, Magri A. 17 β -Oestradiol Protects from Hepatitis C Virus Infection through Induction of Type I Interferon. *Viruses*. 2022. 14.

Lena AM, Rossi V, Osterburg S, **Smirnov A.** Osterburg C, Tuppi M, Cappello A, Amelio I, Dötsch V, De Felici M, Klinger FG, Annicchiarico-Petruzzelli M, Valensise H, Melino G, Candi E. The p63 C-terminus is essential for murine oocyte integrity. *Nature Communications*. 2021;12(1).

Montanaro M, Meloni M, Anemona L, Giurato L, Scimeca M, Izzo V, Servadei F, **Smirnov A.** Candi E, Mauriello A, Uccioli L. Macrophage Activation and M2 Polarization in Wound Bed of Diabetic Patients Treated by Dermal/Epidermal Substitute Nevelia. *The International Journal of Lower Extremity Wounds*. 2020.

Panatta E, Lena AM, Mancini M, **Smirnov A.** Marini A, Delli Ponti R, Botta-Orfila T, Tartaglia GG, Mauriello A, Zhang X, Calin GA, Melino G, Candi E. Long non-coding RNA uc.291 controls epithelial differentiation by interfering with the ACTL6A/BAF complex. *EMBO reports*. 2020;21(3).

*Nicolai S, *Pieraccioli M, ***Smirnov** A, Pitolli C, Anemona L, Mauriello A, Candi E, Annicchiarico-Petruzzelli M, Shi Y, Wang Y, Melino G, Raschellà G. ZNF281/Zfp281 is a target of miR-1 and counteracts muscle differentiation. *Molecular Oncology*. 2019;14(2):294-308. *contributed equally.

Piro M, Ventura A, **Smirnov** A, Saggini A, Lena A, Mauriello A, Bianchi L, Melino G, Candi E. Transglutaminase 3 Reduces the Severity of Psoriasis in Imiquimod-Treated Mouse Skin. *International Journal of Molecular Sciences*. 2020;21(5).

Michaletti A, Mancini M, **Smirnov** A, Candi E, Melino G, Zolla L. Multi-omics profiling of calcium-induced human keratinocytes differentiation reveals modulation of unfolded protein response signaling pathways. *Cell Cycle*. 2019;18(17):2124-40.

Smirnov A, Anemona L, Novelli F, Piro CM, Annicchiarico-Petruzzelli M, Melino G, Candi E. p63 Is a Promising Marker in the Diagnosis of Unusual Skin Cancer. *International Journal of Molecular Sciences*. 2019;20(22).

Smirnov A, Anemona L, Montanaro M, Mauriello A, Annicchiarico-Petruzzelli M, Campione E, Melino G, Candi E. Transglutaminase 3 is expressed in basal cell carcinoma of the skin. *European Journal of Dermatology*. 2019;29(5):477-83.

Smirnov A, Cappello A, Lena AM, Anemona L, Mauriello A, Di Daniele N, Annicchiarico-Petruzzelli M, Melino G, Candi E. ZNF185 is a p53 target gene following DNA damage. *Aging*. 2018;10(11):3308-26.

Smirnov A, Lena AM, Cappello A, Panatta E, Anemona L, Bischetti S, Annicchiarico-Petruzzelli M, Mauriello A, Melino G, Candi E. ZNF185 is a p63 target gene critical for epidermal differentiation and squamous cell carcinoma development. *Oncogene*. 2018;38(10):1625-38.

Panatta E, Lena AM, Mancini M, Affinati M, **Smirnov** A, Annicchiarico-Petruzzelli M, Piro MC, Campione E, Bianchi L, Mazzanti C, Melino G, Candi E. Kruppel-like factor 4 regulates keratinocyte senescence. *Biochemical and Biophysical Research Communications*. 2018;499(2):389-95

Cassandri M, **Smirnov** A, Novelli F, Pitolli C, Agostini M, Malewicz M, Melino G, Raschellà G. Zinc-finger proteins in health and disease. *Cell Death Discovery*. 2017;3(1).

Candi E, **Smirnov** A, Panatta E, Lena AM, Novelli F, Mancini M, Viticchiè G, Piro MC, Di Daniele N, Annicchiarico-Petruzzelli M, Melino G. Metabolic pathways regulated by p63. *Biochemical and Biophysical Research Communications*. 2017;482(3):440-4.

Smirnov A, Panatta E, Lena A, Castiglia D, Di Daniele N, Melino G, Candi E. FOXM1 regulates proliferation, senescence and oxidative stress in keratinocytes and cancer cells. *Aging*. 2016;8(7):1384-97.

Peintner L, Novelli F, **Smirnov** A, Maurer U, Borner C, von Karstedt S. 9th Tuscany Retreat on Cancer Research: genetic profiling, resistance mechanisms and novel treatment concepts in cancer. *Cell Death & Differentiation*. 2015;23(1):183-4.

Book chapters

Candi E, McLean WHI, Didona B, Terrinoni A, **Smirnov** A, and Melino G. (Mar 2018) Cornification Diseases (Skin Cell Death). In: eLS. John Wiley & Sons Ltd, Chichester.

Candi E, Knight RA, Panatta E, **Smirnov** A, and Melino G. (Nov 2016) Cornification of the Skin: A Non-apoptotic Cell Death Mechanism. In: eLS. John Wiley & Sons, Ltd: Chichester.

CONFERENCES

Oral presentations

05/2024 | Symposium on Cancer Challenges | Frascati, Italy

Title: p63 targets in bladder cancer

10/2023 | Inflammation and cancer international conference | Kazan, Russia

Title: p63 and CTCF epigenetically control expression of a skin-restricted gene XP33 in normal cell and cancer

06/2023 | SIBBM Conference | Bari, Italy

Title: Epigenetic priming of an epithelial enhancer by p63 and CTCF controls expression of a skin-restricted gene XP33

08/2017 | 10th Tuscany Retreat on Cancer Research | Sarteano-Siena, Italy

Title: ZNF185 is p53 and p63 target gene involved in keratinocyte differentiation and DNA damage response

08/2015 | 9th Tuscany Retreat on Cancer Research | Sarteano-Siena, Italy

Title: FoxM1 in normal keratinocytes and cancer cells

Posters 09/2024 | CSHL Chromatin & Epigenetics | Cold Spring Harbor, NY, USA

Title: Epigenetic regulation of bladder cancer progression by the transcription factor p63

06/2024 | Forum Nazionale sulla Medicina di Precisione | Palermo, Italy

Title: Mouse models of metabolism and inflammation: the role of p63 C-terminal domains

05/2024 | The 19th p53 meeting | Trieste, Italy

Title: p63, a p53 family member, acts as tumour suppressor in invasive bladder cancer regulating lipid metabolism

12/2019 | Ludwig Retreat | Oxford, UK

Title: p53 activation and HDAC inhibition act synergistically to reactivate latent EBV to lytic cycle

Conference abstracts 06/2024 | The 48th FEBS Congress | Milan, Italy

Title: The interplay between the transcriptional factor p63 and lipase MGLL affects bladder cancer progression (Franzese Canonico et al)

09/2017 | 47th annual ESDR meeting | Salzburg, Austria

Title: Ultra-conserved non-coding transcript T-UC291 controls keratinocyte differentiation by interfering with ACTL6A (Panatta et al)

07/2017 | The 17th international p53 workshop | Singapore

Title: Ultra-conserved non-coding transcript T-UC291 controls somatic tissue by interfering with p63-BAF activity and ACTL6A-BAF interaction (Panatta et al)

06/2017 | 2nd International Symposium on Frontiers in Molecular Science | Basel, Switzerland

Title: Ultra-conserved non-coding transcript T-UC291 controls somatic tissue by interfering with ACTL6A (Panatta et al)