Decreto Rettore Università di Roma "La Sapienza" n. **3103/2019** del 17/10/2019

Pankaj Narendra Prasad Trivedi
Curriculum Vitae

Rome, 7th November 2019

Part I – General Information

Full name	Pankaj Narendra Prasad Trivedi
Citizenship	Italian
Languages spoken	Italian, English, Swedish, Hindi, Gujarati

Part II – Education

Type	Year	Institution	Notes (degree, thesis title)
Bachelor of Science	1983	Sardar Patel University Vallabh Vidyanagar Pincode: 388120, Gujarat, India	B.Sc. (Microbiology)
Master of Science	1985	Sardar Patel University Vallabh Vidyanagar Pincode: 388120, Gujarat, India	M.Sc. (Microbiology)
Ph.D.	1995	Karolinska Institute, Stockholm, Sweden	Doctoral dissertation title: Epstein-Barr virus growth transformation associated proteins: Effects on immunogenicity and phenotype of the tumor cells
National Scientific eligibility	2014	ANVUR	Eligibility for full Professor in the sector 06/N1, call 2012

Part III – Appointments

III A – Academic Appointments

Start	End	Institution	Position
Sep 1995	Sep 1998	Neuromed Institute, Pozzilli, Italy	Postdoc
Oct 1998	Oct 2001	Department of experimental Medicine, Sapienza University, Rome	Senior Postdoc
Nov 2001	Present	Department of Experimental Medicine, Sapienza University, Rome	Associate Professor

III B – Other Appointments

Start	End	Institution	Position
Sep 2001	Oct 2001	Hokkaido University Medical School, Sapporo, Japan	Visiting Scientist
Oct 2016	March 2017	Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, USA	Visiting Professor
2015	Present	Sapienza University, Rome	Responsible for the international academic mobility (RAM), Erasmus program for Physiotherapy undergrad course, San Giovanni Addolorata Hospital.

III C – Editorial/reviewer expertise

	Journal	Position
2012-Present	MicroRNA journal	Associate Editor
2018	International Journal of Molecular Sciences	Guest Editor, Special issue on microRNAs in human diseases
2019-present	Scientific Reports, Nature Publishing Group.	Editorial Board Member
2019	BMC Pulmonary Medicine	Reviewer
03/2019	Oncology Letters	Reviewer
10/2018	Frontiers in Immunology	Reviewer
08/2018	Scientific Reports	Reviewer
2018	Journal of Cellular Physiology	Reviewer
11/2018	PLos One	Reviewer
03/2018	Eur J Hematology	Reviewer
09/2018	Scientific Reports	Reviewer
06/2018	Cell Death and Differentiation	Reviewer
2018	International Journal of Cancer	Reviewer
06/2017	Scientific Reports	Reviewer
2017	Cancers	Reviewer
2017	Molecular Carcinogenesis	Reviewer
2017	Pathogens	Reviewer

The list of journals for which I have recently served as reviewer can be found at:
https://publons.com/researcher/1263361/pankaj-trivedi/

III D – International Grant reviewer

	Grant Agency	Position
2010	AICR, (now known as Worldwide Cancer research), UK	Reviewer
2013	Food and Health Bureau of the Government of the Hong Kong Special administrative region, People's Republic of China	Reviewer

2013	Maturation and Accelerating Translation With INdustry, MATWIN, French Cancéropôles network, France	Reviewer

Part IV A – Teaching experience (undergraduate, post graduate and doctorate courses)

Year	Institution	Lecture/course
1992	Department of General Pathology and Experimental Medicine, Sapienza University Rome	Invited lecturer. Epstein-Barr virus and lymphoma: A practical course.
1996-1998	Neuromed Institute, Pozzilli (IS), Degree course in Physiotherapy, Sapienza University	Scientific English
2001-present	Degree course in Physiotherapy, San Giovanni Addolorata Hospital, Course C, Sapienza University, Rome	Coordinator and docent of General Pathology and Microbiology
2017-present	Sapienza University, Rome	President of the Degree course in Physiotherapy, corso C, San Giovanni Addolorata Hospital, Rome
2001-present	Sapienza University, Rome	Supervision of 6 doctorate students, PhD degree course in Experimental Medicine
2001-present	Sapienza University, Rome	Supervision of experimental thesis of 10 undergraduate students
2004-2006	Ph.D. school in the Pathologies of the neck organs (Patologie degli organi del collo), Sapienza University, Rome.	Board Member
2012-2019	Sapienza University, Rome. PhD school in life sciences (Dottorato: Scienze della vita)	Board Member
2013-present	Sapienza University, Rome	Master in Molecular Virology, Sapienza University
2014-present	Sapienza University, Rome	Undergraduate course in Biotechnology. Lectures: MicroRNA and diseases

Part IV B - International Ph.D. Examiner and Erasmus supervisor

	Institution	Thesis title
2018	Calcutta University, India	Analysis of Regulation of Self Renewal Pathways And EGFR Expression In Uterine Cervical Carcinoma Of Indian Patients. Candidate: Dr. Sudip Sammader
2017	Calcutta University, India	Molecular Analysis Of DNA Damage Response Pathways In Breast Cancer. Candidate: Dr. Hemantika Dasgupta
2016	Calcutta University, India	Effect of Tea and Tea Polyphenols (EGCG and TF) on Stem Cell renewal pathways during oral and liver carcinogenesis induced by N-nitrosodiethylamine (NDEA): Candidate: Dr. Subhayan Sur
2014	Jadavpur University, India	Analysis of HPV 16/18 profiling and identification of candidate tumor suppressor genes loci in chromosome 11

		associated with development of uterine cervical carcinoma of Indian patients. Candidate: Dr. Dipanjana Indra
2012	Jadavpur University, India	Molecular analysis of development of carcinogenesis in an experimental model of 20 methyl cholanthrene induced transformed murine embryonal fibroblast cells in culture. Candidate: Dr. Sudeshna Mukherjee
2015-present	Erasmus Incoming students	Aberdeen University, UK; Universitè Paris Descartes, France and Aristotle University, Thessaloniki, Greece.

Part V A - Society memberships, Fellowships, Awards, Honors

Year	Title
2017-present	Associate Member of the American Association for Cancer Research (AACR)
2018-present	Founding Member of the Italian Society of translational Research and Paramedical professions (SIRTEPS).
2016	Winner of Yamagiwa-Yoshida Award Memorial International Cancer Study Grant, Union for International Cancer Control, UICC.
1996-97	International AIDS research fellowship from the Italian national health Institute (Istituto Superiore di Sanità)
1998	Fellowship from the Pasteur Institute, International Network, Rome, Italy
1999-2001	Fellowship from Italian Cancer research Association (AIRC)
1995	Travel grant from the Swedish Cancer Society, Cancerfonden, Sweden
1991-1995	Fellowship from Karolinska Institute, Stockholm, Sweden
1986-91	Fellowship from the Cancer Research Institute, New York and Concern foundation, Los Angeles, USA

Part V B - Patent and media coverage

2019	US provisional patent 62/678,728, RNA aided immunotherapeutics was originally filed in the USA on 31/5/2018. An international patent (PCT) has been filed on 31/5/2019. Inventors: Trivedi (Sapienza), Slack and Anastasiadou (Harvard Medical School), Boston, USA. https://www.uniroma1.it/en/brevetto/us-provisional-62678728
2018	News coverage of Anastasiadou et al, Leukemia 2018. https://www.uniroma1.it/it/notizia/dallalleanza-sapienza-harvard-un-nuovo-approccio-limmunoterapia-del-cancro https://tg24.sky.it/salute-e-benessere/2018/07/12/tumori-terapia-sistema-immunitario.html https://oncolife.it/blog/novita-dalla-ricerca/immunoterapia-del-cancro-di-origine-infettiva-un-nuovo-approccio/ **https://www.researchitaly.it/en/success-stories/health-new-strategies-to-prevent-tumours-from-escaping-the-immune-system/** https://www.sanitainformazione.it/salute/sapienza-harvard-immunoterapia/ https://issuu.com/onbpress/docs/gdb_settembre_pagina_singola, Il giornale dei Biologi, 5, Settembre 2018, pagina 26

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2003	Controllo della latenza e della replicazione del virus di Epstein-Barr, Number: 2003062292_001, Coordinator: Prof. Alberto Faggioni, Role: Investigator	PRIN, Ministry of University and Research, Italy	70.000
2006	Identificazione dei regolatori cellular della latenza del virus di Epstein-Barr:Implicazioni per la terapia dei linfomi EBV associate. Number: 2006064071, Role: National coordinator	PRIN, Ministry of University and Research, Italy	45.000
2004-2006	Control of latency and replication of Epstein-Barr virus, PI: Prof. Faggioni, Role: Investigator	Associazione Italiana per la ricerca sul cancro (AIRC)	105.000
2007-2009	Identification of the cellular regulators of EBV latency: Implications for the therapy of EBV associated lymphomas. PI: Prof. Faggioni, Role: Investigator	Associazione Italiana per la ricerca sul cancro (AIRC)	180.000
2009	Interazione tra il virus di Epstein Barr e cellula ospite: Regolzione dei microRNA da parte di proteine virali. Number: 2009YFL2EK_002, Team leader, Responabile scientifico dell'unità di ricerca	PRIN, Ministry of University and Research, Italy	60.000
2007	EBV involvement in MS pathogenesis, from whether to how – National coordinator: Prof. Marco Salvetti, Role: Investigator	Fondazione Italiana Sclerosi Multipla	90.000
2008	Patogenesi, diagnosi e terapia della Sclerosi Multipla-National coordinator: Dott.ssa Francesca Aloisi, Role: Investigator	Progetto strategico, Istituto Superiore di Sanità, Ministry of Health, Italy	145.000
2002-2003	Ruolo di SOCS-1 (suppressor of cytokine signaling) nella trasformazione dei linfociti B dal virus di Epstein-Barr", C26F022479, C26F033874, PI	Ricerche di facoltà, Sapienza University	5500
2004-2005	Ruolo del virus di Epstein-Barr nella patogenesi dei linfomi delle effusioni primarie", C26F040139, C26F051284 PI	Ricerche di facoltà, Sapienza University	5400
2006-2007	Identificazione dei regolatori cellulari della latenza del virus di Epstein-Barr virus: Implicazioni per la terapia dei linfomi EBV associati" C26F06FEL9, C26F07F22T, PI	Ricerche di facoltà, Sapienza University Ricerca di Ateneo Federato	5040

2014-2015	Epstein-Barr virus and Multiple Sclerosis: Mechanisms of virally induced immune dysregulation, C26A14FZJE (2014) and Infectious causes of Multiple Myeloma: Epstein-Barr virus and its malignant drones" (2015) C26A15N5LT, PI	Ricerche Universitarie, Sapienza University	7000
2016-2018	Non-coding RNA based immunotherapy of Epstein-Barr virus associated lymphomas (2016) RP116154C9AD1C00, PI Epstein-Barr virus encoded microRNAs as novel biomarkers of systemic lupus erythematosus (2017) RP11715C7A0646CE, PI RNA aided immunotherapy of Epstein-Barr virus associated cancers: A novel approach for reconstitution of tumor immunogenicity in 3D microfluidic chips. (2018) RP11816431EF4518, PI	Ricerche Universitarie, Sapienza University	10600

Part VII – Research Activities

Key words	**Brief Description**
EBV **Burkitt lymphoma** **DLBCL** **microRNA** **Biomarkers** **Latency** **Immune checkpoints** **Tumor immunogenicity** **RNA aided immunothereapy** **3D microfluidic chips**	**The unifying theme of my research interests is to understand molecular mechanisms underlying oncogenic potential of the first human oncogenic virus, namely, Epstein-Barr virus (EBV) and how the results obtained could be translated into novel diagnostic, prognostic and therapeutic approaches for EBV associated cancers.** **a. Establishment of a murine model to investigate immunogenicity of viral proteins:** Early in my career at Karolinska Institute in Stockholm, *I established a syngeneic murine model system to evaluate immunogenicity of EBV encoded latent proteins. I was the first to show that EBNA1, a viral protein present in all EBV infected tumor cells is non-immunogenic.* Using the same model, I also demonstrated that LMP1 which is expressed in nasopharyngeal carcinomas (NPC), has evolved to be non-immunogenic. **These data have proved translationally valuable for EBV vaccine development**. **b. EBV and phenotypic changes in associated cancers**: Another important focus of my research is how EBV induces phenotypic changes in the infected tumor cells which help the virus to avoid immune surveillance. My colleagues and I reported how EBNA2 a virally encoded protein increases BCL2 expression in B cell lymphomas. In epithelial cell model, we showed that E-Cadherin is downregulated by EBV encoded LMP1. I also showed that EBV infected primary effusion lymphomas (PELs) are

	more tumorigenic than KSHV only positive PELs. ***c. EBV and cellular oncogene interaction***: Together with my colleagues, I have discovered that EBV alters TCL1 oncogene when the infected cells have latency I type viral gene expression. Interestingly, we found that latency III type viral gene expression pattern has the opposite effect on TCL1 expression. **Our data showing that latency III related viral genes can negatively affect oncogenes could be critical in designing efficient RNA based therapeutic strategies for EBV associated cancers**. **d. EBV and alteration of cellular miRNA in B cell lymphomas**: Since last 12 years or so, my major research focus is how EBV alters cellular miRNAs to make the infected cells more tumorigenic. My group has been among the pioneers to find that two critically important proteins encoded by EBV, namely EBNA2 and LMP1 can profoundly alter cellular miRNA expression profile. Furthermore, we discovered that in lymphomas, miRNA signature profile depends on the presence of EBV. **These data are relevant for development of new miRNA based diagnostic approaches for B cell lymphoma**. **e. EBV, EBNA2 and Immune checkpoint alteration by dysregulation of miRNAs**: We have recently shown how EBV encoded EBNA2 downregulates cellular miRNAs and in particular miR-34a to increase PD-L1 expression, which helps the virus infected cells evade immune surveillance. *My lab has developed a novel tumor immunogenicity test system based on **3D microfluidic chips**, with significant translational bearings*. Given the fact that cancer immunotherapy is successful only in about 30 % of cases, we are currently investigating the combinatorial potential of noncoding RNA and immune checkpoint blockers to reconstitute tumor immunogenicity. **A joint international patent (PCT) filed together with my collaborators at Harvard Medical School in Boston, USA, emphasizes the conspicuous translational significance of these results**.

Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	52	51 on Scopus and 1 on WOS	1990	2019
Papers [national]	-	-	-	-
Books [scientific dissertation with ISBN]	1	Google Scholar	1995	2019
Books [teaching]	-	-	-	-

Detailed analysis	**Scopus/Wos**	**Google Scholar**
Number of publications	52 (51Scopus, 1WOS)	64
Total impact factor	260.326	260.326
Average impact factor per product	5,006	4,09
Total citations	1875	2442
Average citation per product	36.057	38.156
Hirsch (H) index	24	27
Number of publications as first/last author with impact factor>1	18	18

Number of publications as first or last author in journals with impact factor >5	10	10
Normalized H index*	0.827	0.931

*H index divided by the academic seniority.

Part IX - Selected publications for the evaluation procedure (16).

1. Anastasiadou E, Vaeth S, Cuomo L, Boccellato F, Vincenti S, Cirone M, Presutti C, Junker S, Winberg G, Frati L, Wade PA, Faggioni A, **Trivedi P**. Epstein-Barr virus infection leads to partial phenotypic reversion of terminally differentiated malignant B cells. Cancer Lett. 2009 Nov 1;284(2):165-74. doi: 10.1016/j.canlet.2009.04.025. **(I.F. 3.741, J Citation Reports, Cit: 19 Scopus)**

2. Anastasiadou E, Boccellato F, Vincenti S, Rosato P, Bozzoni I, Frati L, Faggioni A, Presutti C, **Trivedi P**. Epstein-Barr virus encoded LMP1 downregulates TCL1 oncogene through miR-29b. Oncogene. 2010 Mar 4;29(9):1316-28. doi: 10.1038/onc.2009.439 . **(I.F. 7.414, J Citation Reports, Cit: 42 Scopus)**

3. Imig J, Motsch N, Zhu JY, Barth S, Okoniewski M, Reineke T, Tinguely M, Faggioni A, **Trivedi P**, Meister G, Renner C, Grässer FA. microRNA profiling in Epstein-Barr virus-associated B-cell lymphoma. Nucleic Acids Res. 2011 Mar;39(5):1880-93. doi: 10.1093/nar/gkq1043. **(I.F. 8.026, J Citation Reports, Cit: 105 Scopus)**

4. Cirone M, Di Renzo L, Lotti LV, Conte V, **Trivedi P,** Santarelli R, Gonnella R, Frati L, Faggioni A. Primary effusion lymphoma cell death induced by bortezomib and AG 490 activates dendritic cells through CD91. PLoS One. 2012;7(3):e31732. doi: 10.1371/journal.pone.0031732. **(I.F. 3.730 J Citation Reports, Cit: 56 Scopus)**

5. Kwanhian W, Lenze D, Alles J, Motsch N, Barth S, Döll C, Imig J, Hummel M, Tinguely M, **Trivedi P**, Lulitanond V, Meister G, Renner C, Grässer FA. MicroRNA-142 is mutated in about 20% of diffuse large B-cell lymphoma. Cancer Med. 2012 Oct;1(2):141-55. doi: 10.1002/cam4.29. **(I.F. 2.477 J Citation Reports 2014, Cit: 39 Web of Science)**

6. Rosato P, Anastasiadou E, Garg N, Lenze D, Boccellato F, Vincenti S, Severa M, Coccia EM, Bigi R, Cirone M, Ferretti E, Campese AF, Hummel M, Frati L, Presutti C, Faggioni A, **Trivedi P**. Differential regulation of miR-21 and miR-146a by Epstein-Barr virus-encoded EBNA2. Leukemia. 2012 Nov;26(11):2343-52. doi: 10.1038/leu.2012.108. **(I.F. 10.164 J Citation Reports, Cit: 53 Scopus)**

7. Severa M, Giacomini E, Gafa V, Anastasiadou E, Rizzo F, Corazzari M, Romagnoli A, **Trivedi P**, Fimia GM, Coccia EM. EBV stimulates TLR- and autophagy-dependent pathways and impairs maturation in plasmacytoid dendritic cells: implications for viral immune escape. Eur J Immunol. 2013 Jan;43(1):147-58. doi: 10.1002/eji.201242552. **(I.F. 4.518, J Citation Reports, Cit: 50 Scopus)**

8. Granato M, Santarelli R, Gonnella R, Farina A, **Trivedi P**, Faggioni A, Cirone M. Targeting of prosurvival pathways as therapeutic approaches against primary effusion lymphomas: past, present, and Future. Biomed Res Int.2015;2015:104912. doi: 10.1155/2015/104912. Epub 2015 Jan 28. Review. **(I.F. 2.134 J Citation Reports, Cit: 7 Scopus)**

9. Cuomo L, Cirone M, Di Gregorio AO, Vitillo M, Cattivelli M, Magliocca V, Maiorano S, Meledandri M, Scagnolari C, La Rocca S, **Trivedi P**. Elevated antinuclear antibodies and altered anti-Epstein-Barr virus immune responses. Virus Res. 2015 Jan 2;195:95-9. doi: 10.1016/j.virusres.2014.09.014. **(I.F. 2.526 J Citation Reports, Cit: 7 Scopus)**

10. Anastasiadou E, Garg N, Bigi R, Yadav S, Campese AF, Lapenta C, Spada M, Cuomo L, Botta A, Belardelli F, Frati L, Ferretti E, Faggioni A, **Trivedi P**. Epstein-Barr virus infection induces miR-21 in terminally differentiated malignant B cells. Int J Cancer. 2015 Sep 15;137(6):1491-7. doi: 10.1002/ijc.29489. **(I.F. 5.531 J Citation Reports, Cit: 19 Scopus)**

11. Anastasiadou E, Faggioni A, **Trivedi P**, Slack FJ. The Nefarious Nexus of Noncoding RNAs in Cancer. Int J Mol Sci. 2018 Jul 17;19(7). doi: 10.3390/ijms19072072. Review. **(I.F: 4.183 J Citation Reports, Cit: 12 Scopus)**

12. **Trivedi P**, Slack FJ, Anastasiadou E. Epstein-Barr virus: From kisses to cancer, an ingenious immune evader. Oncotarget. 2018 Nov 23;9(92):36411-36412. doi: 10.18632/oncotarget.26381. eCollection 2018 Nov 23. **(I.F. 5.168 J Citation Reports 2016, Cit: 0, Scopus)**

13. Anastasiadou E, Stroopinsky D, Alimperti S, Jiao AL, Pyzer AR, Cippitelli C, Pepe G, Severa M, Rosenblatt J, Etna MP, Rieger S, Kempkes B, Coccia EM, Sui SJH, Chen CS, Uccini S, Avigan D, Faggioni A, **Trivedi P***, Slack FJ*. Epstein-Barr virus-encoded EBNA2 alters immune checkpoint PD-L1 expression by downregulating miR-34a in B-cell lymphomas.Leukemia. 2019 Jan;33(1):132-147. doi: 10.1038/s41375-018-0178-x. Epub 2018 Jun 26. **(I.F. 9.944, J Citation Reports, Cit: 9 Scopus), *co-senior author and co-corresponding author.**

14. Ayoubian H, Ludwig N, Fehlmann T, Menegatti J, Gröger L, Anastasiadou E, **Trivedi P**, Keller A, Meese E, Grässer FA.Epstein-Barr Virus Infection of Cell Lines Derived from Diffuse Large B-Cell Lymphomas Alters MicroRNA Loading of the Ago2 Complex. J Virol. 2019 Feb 1;93(3). doi: 10.1128/JVI.01297-18. Print 2019 Feb 1. (**I.F. 4.324, J Citation Report, Cit: 0 Scopus)**

15. Severa M, Rizzo F, Srinivasan S, Di Dario M, Giacomini E, Buscarinu MC, Cruciani M, Etna MP, Sandini S, Mechelli R, Farina A, **Trivedi P**, Hertzog PJ, Salvetti M, Farina C, Coccia EM. A cell type-specific transcriptomic approach to map B cell and monocyte type I interferon-linked pathogenic signatures in Multiple Sclerosis. J Autoimmun. 2019 Jul;101:1-16. doi: 10.1016/j.jaut.2019.04.006. Epub 2019 Apr 30. **(I.F. 7.543, J Citation Report, Cit: 0 Scopus)**

16. Manchala NR, Dungdung R, **Trivedi P**, Unniyampurath U, Pilankatta R. Mycophenolic acid (MPA) modulates host cellular autophagy progression in sub genomic dengue virus-2 replicon cells. Microb Pathog. 2019 Sep 24;137:103762. doi: 10.1016/j.micpath.2019.103762. [Epub ahead of print] PubMed PMID: 31560972. **(I.F. 2.581, J Citation Report, Cit: 0 Scopus).**

Part X – All publications (1990-2019)

An up-to-date list of my publications can be found at:
https://www.ncbi.nlm.nih.gov/myncbi/1ZeyeluR8p8A-/bibliography/public/