

CURRICULUM VITAE

PETKO M. PETKOV

Contact Information

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EDUCATION

1993, PhD, Higher Attestation Commission, Specialized Scientific Council of Molecular Biology and Genetics. Diploma for Candidate of Biological Sciences (Ph.D. equivalent). Thesis: Purification and Characterization of the Main Diaphorases from Several Drosophila Species. Mentor: Assoc. Prof. K. Ralchev, PhD.

1981-1986, BS/MS, University of Sofia, Bulgaria. Diploma for Higher Education (BS/MS equivalent) in Molecular and Functional Biology. Specialization: Genetics. Thesis: Cytogenetical and Electrophoretic Investigations on *Lacerta vivipara* Jacq. and *Lacerta muralis* Laur. from Bulgaria. Mentor: Assoc. Prof. R. Belcheva, PhD

TRAINING COURSES

January-April 1991. Institute of Bioorganic Chemistry, Moscow, Russia. Mentor: Prof. T.V. Ovchinnikova, PhD. Theme: Structural investigations of proteins.

September - December 1993. Free University Berlin, Institute of General Genetics. Mentor: Prof. G. Korge, PhD. Theme: Regulation of Gene Activity in Drosophila.

SCIENTIFIC AND TEACHING RECORD

February 2015 – present

Senior Research Scientist. The Jackson Laboratory, Ken Paigen's lab. Topics: Recombination initiation complex and PRDM9 function in it. The specificity of zinc finger proteins interaction with DNA. Chromatin regulatory systems in hepatocytes.

June 2006 – February 2015

Research Scientist. The Jackson Laboratory, Ken Paigen's lab. Topic: Chromosome-wide mapping of mouse recombination. Genetic control of hotspot activity. Recombination initiation complex and PRDM9 function in it.

March 2004 – June 2006

Associate Research Scientist. The Jackson Laboratory, Ken Paigen's lab. Topic: Investigation on recombination hotspots and LD blocks in the mouse genome.

July 2001-March 2004

Research Associate R&D. Technology Development Department, The Jackson Laboratory. Topic: Investigation on SNPs in different mouse strains.

March 1997-July 2001

Research Associate. Liver Research Center, Albert Einstein College of Medicine of Yeshiva University, Bronx, NY, 10461. Mentor: Prof. D.A. Shafritz, MD/PhD. Topic: Investigation of genes expressed in liver stem/progenitor cells.

March 1993-March 1997

Major Assistant Professor (Assistant Professor equivalent), Department of Genetics, Faculty of Biology, University of Sofia "St. Kliment Ohridski". Topic: Structure and expression of NAD(P)H oxidoreductase genes in *Drosophila*.

Courses taught

General Genetics (1993-1997, BS students, ~120 students per year)

Molecular Genetics (1994-1997, MS students, ~35 students per year)

21st Century Mouse Genetics (2017-2018, The Jackson Laboratory, ~20 students per year)

Mentoring record

5 students with diploma work for MS graduation

RESEARCH GRANTS

Current Research Support

R01 GM125736 Petkov PM (PI) 09/01/2018 - 08/31/2022

NIH/NIGMS

DNA Binding Properties of Zinc Finger Proteins

The goal of this project is to determine the rules regulating the binding of 20 PRDM9 protein variants and 60 other zinc finger proteins to DNA, and to design new and improved algorithms for binding site prediction.

Role: Principal Investigator

DIF 19000-18-13. Petkov PM, Paigen K., Wiles M. 7/5/ 2019 – 5/31/2020.

Preventing T2D by identifying T2D susceptibility genes.

The goal of this project is to develop new gene silencing approaches as treatments for type 2 diabetes.

Role: Principal Investigator

Completed Research Support

JAX-DIF-FY17-KP Paigen (PI) 03/01/17-12/31/17

The Jackson Laboratory Director's Innovation Fund

Understanding the Chromatin Regulatory System

The goal of this project is to expand our understanding of a newly discovered system of trans-acting genes comprising a Chromatin Regulatory System (CRS) that controls the epigenetic landscape.

Role: Co-Investigator

Role: Principal Investigator

TJL DIF FY14 GWC Collab Carter (PI) 05/01/14-4/30/16

The Jackson Laboratory Director's Innovation Fund

Genetics of Molecular Epigenetics

The goal of this project is to understand the consequences of genetic variation on genome-wide transcript regulation

Role: Joint PI

5 P50 GM076468-07 Churchill (PI) 7/15/11-6/30/16

NIH/NIGMS

Center for Genome Dynamics - Project B: Systems Genetics of Meiotic Recombination

The goal of this project is to identify epistatic genes that interact in networks to control the location and activity of recombination hotspots.

Role: Project Leader

2 R01 GM078452-06A1 Petkov (PI) 8/1/12-4/30/16

NIH/NIGMS

Sex-Specific Regulation of Meiotic Recombination Hotspots

The goal of this project is to determine the factors regulating sex specificity of meiotic recombination, both in its regional distribution along the chromosomes and the activity of sex-specific recombination hotspots.

Role: Principal Investigator

TJL-CCSG-Pilot-PMP01 Petkov (PI) 12/01/12-10/30/13

The Jackson Laboratory Cancer Center

The Jackson Laboratory Cancer Center, 2012-2013 Pilot Feasibility Studies - Does PDRM9 Play a Role in Cancer?

The goal of this project is to determine whether the expression of Prdm9 influence the incidence of tumor formation and progression in Apc^{+/-} mice.

Role: Principal Investigator

5 R01 GM078452-05 Petkov (PI) 3/1/07-7/31/12

NIH/NIGMS

Chromosome-wide Mapping of Recombinational Activity

The goal of this project is to achieve understanding of the principles that determine the existence and activity of recombinational hot spots across the genome.

Role: Principal Investigator

3 R01 GM083408-02S1Z Paigen (PI) 8/17/09-7/31/11

NIH/NIGMS

Transacting Genes Regulating Recombination Hotspot Activities - ARRA Administrative Supplement

The aim of this project is to search for genes suppressing and modulating recombination activity

Role: Co-Investigator

5 P50 GM076468-05 Churchill (PI) 4/1/06-7/14/11

NIH/NIGMS

Genome Dynamics: Evolution, Organization and Function - Project 5: Chromosome-wide Mapping of Recombinational Activity

The goal of this project is to create high-resolution genetic maps of Chr 11 in six mouse crosses and study how genetic background, sex and imprinting affect hotspot positioning and usage. This study will provide the necessary information to start a comprehensive mapping of genes regulating recombination activity.

Role: Project Leader

5 P50 GM076468-05 Churchill (PI) 4/1/06-7/14/11

NIH/NIGMS

Genome Dynamics: Evolution, Organization and Function - Core 3: Molecular Biology

The main task of this core is to provide high-quality DNA and RNA samples for Projects 1, 3 and 5, and to perform expression studies using Affymetrix microarrays and real-time PCR..

Role: Core Leader

2 P40 RR016049-06A1 Donahue (PI) 9/1/06-6/30/11

NIH/NCRR

Special Mouse Strains Resource

The major goal of this project is to maintain, characterize and distribute recombinant inbred and consomic strains of mice.

Role: Research Scientist

5 R21 AR055181-02 Petkov (PI)

7/1/08-5/31/11

NIH/NIAMS

Search for Genes Involved in Arthritis Pathogenesis

The specific aims of this project are: (1) Map the region on chromosome 6 responsible for arthritis resistance using a backcross between B6-Chr6PWD and B6, and select candidate genes. (2) Evaluate arthritis susceptibility and clinical parameters of arthritis development using the entire set (n=28) of ChrNPWD consomics and the serum-transfer model of arthritis.

Role: Principal Investigator

5 R01 GM078643-03 Paigen (PI)

1/1/06-12/31/10

NIH/NIGMS

Genomic Organization of Recombination Hot Spots

The major goal of this grant is obtain a detailed map at one Kb resolution of all recombinational hotspots, including their sex and haplotype specificity, for five different five Mb regions chosen for their particular biological interest on separate chromosomes using 6000 meioses.

Role: Co-Investigator

AG-SS-1631-06 Paigen (PI)

10/2/06-10/1/10

Ellison Medical Foundation

New Genetic Strategies in the Study of Aging

The goal of this project is the development of new genetic strategies in the study of human aging using RNAi directed mutagenesis in somatic cell cultures to identify previously unknown genes participating in the aging process.

Role: Co-Principal Investigator

MEMBERSHIPS AND HONORS

2008 – Member of International Mammalian Genome Society

1999 – Member of American Association for Advancement of Science

1986 – Magna Cum Laude, MS graduation

Professional Services

2004 Ad hoc reviewer, Trends in Biotechnology
2005 Ad hoc reviewer, Clinical Chemistry, Comparative Medicine, PLoS Genetics
2006 Ad hoc reviewer, PLoS Genetics
2008 Ad hoc reviewer, Experimental Hematology
2009 Ad hoc reviewer, PLoS Genetics, Genome Research
2010 Ad hoc reviewer, Mutation Research, Genetics, BMC Bioinformatics
2011 Ad hoc reviewer, BMC Genomics, Animal Genetics, Grant Reviewer for Israel Science Foundation, Genetics, PLoS Genetics
2012 Ad hoc reviewer, PLoS Genetics, Am.J.Human Genetics, J. Heredity
2013 Ad hoc reviewer, Genetics, Proc. Royal Society
2013 Study section member, Genomic Variation and Evolution section, NIGMS, NIH
2014 Study section member, Genes, Genomes and Genetics section, NIGMS, NIH
2015 Grant Reviewer, DOC Program, Austrian Academy of Sciences
Study section member, Genes, Genomes and Genetics section, NIGMS, NIH
2016 Study section member, Genomic Variation and Evolution section, NIGMS, NIH
Ad hoc reviewer, PLOS One (2), BMC Evolutionary Biology, Genetics, PNAS
Grant Reviewer for Israel Science Foundation
2017 Ad hoc reviewer, BMC Evolutionary Biology

2018 Ad hoc reviewer, Genes and Development, PLOS Genetics
2019 Ad hoc reviewer, PLOS One, Current HIV Research, Epigenetics and Chromatin

PUBLICATION LIST

Papers:

1. Mihola O, Pratto F, Brick K, Linhartova E, Kobets T, Flachs P, Baker CL, Sedlacek R, Paigen K, **Petkov PM**, Camerini-Otero RD, Trachtulec Z. (2019). Histone methyltransferase PRDM9 is not essential for meiosis in male mice. *Genome Res.* 2019 Jul;29(7):1078-1086. PMID: 31186301 PMCID: PMC6633264.
2. Bhattacharyya T, Walker M, Powers NR, Brunton C, Fine AD, **Petkov PM**, Handel MA. (2019). Prdm9 and Meiotic Cohesin Proteins Cooperatively Promote DNA Double-Strand Break Formation in Mammalian Spermatocytes. *Curr Biol.* 2019 Mar 18;29(6):1002-1018. PMID: 30853435 PMCID: PMC6544150.
3. Baker CL, Walker M, Arat S, Ananda G, Petkova P, Powers NR, Tian H, Spruce C, Ji B, Rausch D, Choi K, **Petkov PM**, Carter GW, Paigen K. (2019). Tissue-Specific Trans Regulation of the Mouse Epigenome. *Genetics.* 2019 Mar;211(3):831-845. PMID: 30593494 PMCID: PMC6404261.
4. Tian, H., Billings, T., **Petkov, P.M.** (2018). CXXC1 is not essential for normal DNA double-strand break formation and meiotic recombination in mouse. *PLoS Genet.* 2018; 14(10):e1007657. PMCID: PMC6221362
5. Paigen K, **Petkov PM** (2018). PRDM9 and Its Role in Genetic Recombination. *Trends Genet.*, 2018 Jan 20. pii: S0168-9525(17)30237-8. PMID: 29366606
6. Parvanov ED, Tian H, Billings T, Saxl RL, Spruce C, Aithal R, Krejci L, Paigen K, **Petkov PM**. (2017). PRDM9 interactions with other proteins provide a link between recombination hotspots and the chromosomal axis in meiosis. *Mol Biol Cell.* 2017 Feb 1;28(3):488-499. PMID: 27932493.
7. Powers NR, Parvanov ED, Baker CL, Walker M, **Petkov PM**, Paigen K. (2016). The Meiotic Recombination Activator PRDM9 Trimethylates Both H3K36 and H3K4 at Recombination Hotspots In Vivo. *PLoS Genet.* 2016 Jun 30;12(6):e1006146. PMID: 27362481.
8. Narasimhan VM, Hunt KA, Mason D, Baker CL, Karczewski KJ, Barnes MR, Barnett AH, Bates C, Bellary S, Bockett NA, Giorda K, Griffiths CJ, Hemingway H, Jia Z, Kelly MA, Khawaja HA, Lek M, McCarthy S, McEachan R, O'Donnell-Luria A, Paigen K, Parisinos CA, Sheridan E, Southgate L, Tee L, Thomas M, Xue Y, Schnall-Levin M, **Petkov PM**, Tyler-Smith C, Maher ER, Trembath RC, MacArthur DG, Wright J, Durbin R, van Heel DA. (2016). Health and population effects of rare gene knockouts in adult humans with related parents. *Science.* 2016 Apr 22;352(6284):474-7. PMID: 26940866.
9. Andrew P Morgan, AP, Chen-Ping Fu, Chia-Yu Kao , Catherine E Welsh , John P Didion, Liran Yadgary, Leeanna Hyacinth, Martin T Ferris, Timothy A Bell, Darla R Miller, Paola Giusti-Rodriguez, Randal J Nonneman, Kevin D Cook, Jason K Whitmire, Lisa E Gralinski, Mark Keller, Alan D Attie, Gary A Churchill, **Petko Petkov**, Patrick F Sullivan, Jennifer R Brennan, Leonard McMillan, and Fernando Pardo-Manuel de Villena (2015). The Mouse Universal Genotyping Array: from substrains to subspecies. *G3 Gene, Genomes, Genetics* 2015 Dec 18. g3.115.022087. PMID: 26684931.
10. Baker CL, Petkova P, Walker M, Flachs P, Mihola O, Trachtulec Z, **Petkov PM**, Paigen K. (2015). Multimer Formation Explains Allelic Suppression of PRDM9 Recombination Hotspots. *PLoS Genet.* 2015 Sep 14;11(9):e1005512. PMID: 26368021.
11. Walker M, Billings T, Baker CL, Powers N, Tian H, Saxl RL, Choi K, Hibbs MA, Carter GW, Handel MA, Paigen K, **Petkov PM**. (2015). Affinity-seq detects genome-wide PRDM9 binding sites and reveals the impact of prior chromatin modifications on mammalian recombination hotspot usage. *Epigenetics Chromatin.* 2015 Sep 7;8:31. PMID: 26351520.
12. Sun F, Fujiwara Y, Reinholdt LG, Hu J, Saxl RL, Baker CL, **Petkov PM**, Paigen K, Handel MA. (2015). Nuclear localization of PRDM9 and its role in meiotic chromatin modifications and homologous synapsis. *Chromosoma.* 2015 Sep;124(3):397-415. PMID: 25894966.

13. Didion JP, Morgan AP, Clayshulte AM, McMullan RC, Yadgary L, **Petkov PM**, Bell TA, Gatti DM, Crowley JJ, Hua K, Aylor DL, Bai L, Calaway M, Chesler EJ, French JE, Geiger TR, Gooch TJ, Garland T Jr, Harrill AH, Hunter K, McMillan L, Holt M, Miller DR, O'Brien DA, Paigen K, Pan W, Rowe LB, Shaw GD, Simecek P, Sullivan PF, Svenson KL, Weinstock GM, Threadgill DW, Pomp D, Churchill GA, Pardo-Manuel de Villena F. (2015). A multi-megabase copy number gain causes maternal transmission ratio distortion on mouse chromosome 2. *PLoS Genet.* 2015 Feb 13;11(2):e1004850. PMID: 25679959.

14. Baker CL, Kajita S, Walker M, Saxl RL, Raghupathy N, Choi K, Petkov PM, Paigen K. (2015). PRDM9 drives evolutionary erosion of hotspots in *Mus musculus* through haplotype-specific initiation of meiotic recombination. *PLoS Genet.* 2015 Jan 8;11(1):e1004916. PMID: 25568937
15. Baker CL, Kajita S, Walker M, **Petkov PM**, Paigen K. (2014). PRDM9 binding organizes hotspot nucleosomes and limits Holliday junction migration. *Genome Res.* 2014 Mar 6. 24(5):724-732. PMID: 24604780.
16. Billings T, Parvanov ED, Baker CL, Walker M, Paigen K, **Petkov PM**. (2013). DNA binding specificities of the long zinc finger recombination protein PRDM9. *Genome Biol.* 2013 Apr 24;14(4):R35. PMCID: 23618393.
17. Paigen K, **Petkov P**. 2012. Meiotic DSBs and the control of mammalian recombination. *Cell Res* 22(12):1624-1626. PMCID: Commentary
18. Billings, T., Sargent, E.E., Szatkiewicz, J.P., Leahy, N., Kwak, I.-Y., Bektassova, N., Walker, M., Hassold, T., Graber, J.H., Broman, K.W., **Petkov, P.M.** (2010). Patterns of recombination activity on mouse chromosome 11 revealed by high resolution mapping. **PLoS One**, 5(12), e15340.
19. Paigen, K., **Petkov, P.** (2010). Mammalian recombination hot spots: properties, control and evolution. **Nat Rev Genet**, 11(3), 221-33.
20. Parvanov ED, **Petkov PM**, Paigen K. (2010). *Prdm9* controls activation of mammalian recombination hotspots. **Science**, 327(5967), 835.
21. Parvanov ED, Ng SHS, **Petkov PM**, Paigen K. 2009. Trans-regulation of mouse meiotic recombination hotspots by *Rcr1*. **PLoS Biol**, 7, e1000036.
22. Ng SH, Madeira R, Parvanov ED, Petros LM, **Petkov PM**, Paigen K. (2009). Parental origin of chromosomes influences crossover within the *Kcnq1* transcriptionally imprinted domain of *Mus musculus*. **BMC Molec Biol**, 10, 43-52.
23. Ng SH, Maas SA, **Petkov PM**, Mills KD, Paigen K. (2009). Co-localization of somatic and meiotic double strand breaks near the *Myc* oncogene on mouse chromosome 15. **Genes Chromosomes Cancer** 48(10):925-930.
24. Ng SH, Parvanov E, **Petkov PM**, Paigen K. (2008). A quantitative assay for crossover and noncrossover molecular events at individual recombination hotspots in both male and female gametes. **Genomics**. 92(4):204-9.
25. Paigen K, Szatkiewicz JP, Sawyer K, Leahy N, Parvanov ED, Ng SH, Graber JH, Broman KW, **Petkov PM**. (2008). The recombinational anatomy of a mouse chromosome. **PLoS Genet.** 4(7):e1000119.
26. **Petkov PM**, Broman KW, Szatkiewicz JP, Paigen K. (2007). Crossover interference underlies sex differences in recombination rates. **Trends Genet.** 23(11):539-42.
27. **Petkov PM**, Graber JH, Churchill GA, DiPetrillo K, King BL, Paigen K. (2007). Evidence of a large-scale functional organization of Mammalian chromosomes. **PLoS Biol.** 2007 May;5(5):e127; author reply e128.
28. Grozdanov PN, **Petkov PM**, Karagoyozov LK, Dabeva MD. (2006). Expression and localization of PCSK9 in rat hepatic cells. **Biochem Cell Biol.** 84(1):80-92.
29. Ishimori N, Li R, Walsh KA, Korstanje R, Rollins JA, **Petkov P**, Pletcher MT, Wiltshire T, Donahue LR, Rosen CJ, Beamer WG, Churchill GA, Paigen B. (2006). Quantitative Trait Loci That Determine BMD in C57BL/6J and 129S1/SvImJ Inbred Mice. **J Bone Miner Res.** 21(1):105-12.
30. Graber JH, Churchill GA, Dipetrillo KJ, King BL, **Petkov PM**, Paigen K. (2006). Patterns and mechanisms of genome organization in the mouse. *J Exp Zool A Comp Exp Biol.* 305(9):683-8. Review.

31. **Petkov PM**, Graber JH, Churchill GA, Dipetrillo K, King BL, Paigen K. (2005). Evidence of a Large-Scale Functional Organization of Mammalian Chromosomes. **PLoS Genet.**, **1(3)**:e33.
32. Kelmenson, P.M, **P.M. Petkov**, X. Wang, D.C. Higgins, B.J. Paigen, K. Paigen (2005). A Torrid Zone on Mouse Chromosome 1 Containing a Cluster of Recombinational Hotspots. **Genetics**, **169 (2)**, 833-841.
33. **Petkov, P.M.** Yueming Ding, Megan A. Cassel, Weidong Zhang, Gunjan Wagner, Evelyn E. Sargent, Steven Asquith, Victor Crew, Kevin A. Johnson, Phil Robinson, Valerie E. Scott, Michael V. Wiles (2004). An Efficient SNP System for Mouse Genome Scanning and Elucidating Strain Relationships. **Genome Research**, **14**, 1806-1811.
34. **Petkov, P.M.**, Megan A. Cassell, Evelyn E. Sargent, Charles J. Donnelly, Phil Robinson, Victor Crew, Steven Asquith, Raymond Vonder Haar, Michael V. Wiles (2004). Development of a SNP Genotyping Panel for Genetic Monitoring of the Laboratory Mouse. **Genomics** **83(5):902-911**.
35. **Petkov, P.M.**, Jiri Zavadil, David Goetz, Tearina Chu, Robert Carver, Charles E. Rogler, Erwin P. Bottinger, David A. Shafritz, Mariana D. Dabeva (2004). Gene Expression Pattern In Hepatic Stem/Progenitor Cells During Rat Fetal Development Using cDNA Microarrays. **Hepatology** **39(3):617-627**.
36. Sandhu, J., **P.M. Petkov**, M.D. Dabeva, and D.A. Shafritz (2001). Stem Cell Properties and Repopulation of the Rat Liver by Fetal Liver Epithelial Progenitor Cells. **Am. J. Pathol.**, **159 (4)**, 1323-1334.
37. **Petkov, P.M.**, K. Kim, J. Sandhu, D.A. Shafritz, and M.D. Dabeva (2000). Identification of differentially expressed genes in epithelial stem/progenitor cells of fetal rat liver. **Genomics**, **68 (2)**, 197-209.
38. Dabeva, M.D., **P.M. Petkov**, J. Sandhu, R. Oren, E. Laconi, E. Hurston, and D.A. Shafritz (2000). Proliferation and differentiation of fetal liver epithelial progenitor cells after transplantation into adult rat liver. **Am.J.Pathol.**, **156(6)**, 2017-2031.
39. Oren, R., M.D. Dabeva, A.N. Karnezis, **P.M. Petkov**, R. Rosencrantz, J.P. Sandhu, S.F. Moss, S. Wang, E. Hurston, E. Laconi, P.R. Holt, S.N. Thung, L. Zhu, D.A. Shafritz (1999). Role of thyroid hormone in stimulating liver repopulation by transplanted hepatocytes. **Hepatology**, **30**, 903-913.
40. Oren, R., M.D. Dabeva, **P.M. Petkov**, E.Hurston, E. Laconi, D.A. Shafritz (1999). Restoration of serum albumin levels in Nagase analbuminemic rats by hepatocyte transplantation. **Hepatology**,**29**, 75-81.
41. Dabeva, M.D., E. Laconi, R. Oren, **P.M. Petkov**, E. Hurston, D.A. Shafritz (1998). Liver regeneration and α -fetoprotein messenger RNA expression in the retrorsine model for hepatocyte transplantation. **Cancer Res.**, **58**, 5825-5834.
42. Dabeva, M.D., Laconi, E., Oren, R., **Petkov, P.**, Hurston, E., Shafritz, D.A. (1998). AFP mRNA expression in regenerating liver: Dedifferentiation of hepatocytes vs maturation of liver progenitor cells. **FASEB J.**, **12(4)**, A468.
43. Ralchev, K.H., **P.M. Petkov**, A.V. Valevska, (1994). A new method for purification of diaphorase-1 and diaphorase-2 from Drosophila virilis, and structural investigations. **C.R. Acad. Bulg. Sci.**, **47**, 3, 91-93.
44. **Petkov, P.M.**, A.V. Valevska, K.H. Ralchev (1994). Comparative characterization of the molecular weights of diaphorase-1 and diaphorase-2 from several Drosophila species. **C.R. Acad. Bulg. Sci.**, **47**, 6, 69-71.
45. Ralchev, K.H., **P.M. Petkov**, B.C. Dunkov (1992). Purification and characterization of diaphorases from some Drosophila species. **Biochem. Genet.**, **30**, (5-6), 305-315.
46. **Petkov, P.**, K. Ralchev, B. Dunkov (1990). Immunochemical and electrophoretic characterization of diaphorase-2" from three Drosophila species. **Genetics and Breeding**, **23**, 285-291 (in Bulgarian).
47. Belcheva, R.G., **P.M.Petkov**, I.R.Kehaiov (1989). Cytogenetic and isoenzyme investigations on two lizard species from genus Lacerta - Lacerta vivipara Jacq. and Lacerta muralis Laur. (Reptilia, Lacertidae). **Acta Zoologica Bulgarica**, **37**, 34-42.
48. Belcheva, R.G., V.I. Bisserkov, H.L. Ilieva, V.A. Beshkov, **P.M. Petkov** (1986). Karyological studies on Lacerta vivipara (Jacq.) Collected in Bulgaria. **Cytologia**, **51**, 567-570.

49. Belcheva, R.G., V.I. Bisserkov, H.L. Ilieva, V.A. Beshkov, **P.M. Petkov** (1984). A comparative study of the karyotype of eight lizard species from genus *Lacerta* (Sauria, Lacertidae). **Third National Conference of Cytogenetics, vol. II**, 436-449 (in Bulgarian).

Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40572688/?sort=date&direction=descending>

Scholarly books:

1. Fox, R.R., Wiles, M.V., and **Petkov, P.M.** (2007). Chapter 8, Genetic monitoring. In: Mouse in Biomedical Research. Fox J, Barthold S, Davisson MT, Newcomer C, Quimby F, Smith A (eds.), Elsevier Press.
2. Ralchev, K.H., **Petkov, P.M.**, Harizanova, N.T., Gueorguieva, T.G., Dunkov, B.C., Ivanova, P.M., Modreva, M.M. A guide for Demonstrations in Gene Engineering. Sofia University, Sofia, Bulgaria, 1997 (in Bulgarian).

Scientific Meetings Participations:

1. **Petkov, PM.**, Tian, H., Billings, T. (2019). Roles of PRDM9 interactors in Meiotic Recombination. Oral presentation. 33rd International Mammalian Genome Conference, September 25-28, 2019, Strasbourg, France.
2. Bhattacharyya, T., Natalie Power, **Petko M. Petkov**, Jiří Forejt, Mary Ann Handel, and Ken Paigen (2018). Dissecting the mechanistic basis of the Dobzhansky–Muller incompatibility causing F1 hybrid sterility in *Mus musculus*. Oral presentation. 32nd International Mammalian Genome Conference, 11-14 November 2018, Wyndham Grand Rio Mar, Rio Grande, Puerto Rico.
3. Tian, H., **Petko M. Petkov** (2018). Roles of two PRDM9 interactors CXXC1 and EWSR1 in Meiotic Recombination. Oral presentation. Gordon Research Conference in Meiosis, 15-18 June 2018, Colby-Sawyer College, New London, NH, US.
4. Bhattacharyya, T., Michael Walker, Jianjun Hu, Catherine Brunton, **Petko M. Petkov**, Kenneth Paigen, Mary Ann Handel (2017). Chromosome axis promotes recombination during mammalian meiosis. EMBO Conference on Meiosis 2017, 27th August – 1st September 2017, Hvar, Croatia.
5. **Petko M. Petkov**, Hui Tian, Tim Billings (2017). EWSR1 regulates recombination hotspot determination and links hotspots to the chromosomal axis. EMBO Conference on Meiosis 2017, 27th August – 1st September 2017, Hvar, Croatia.
6. Tian, H., Paigen, K., **Petkov, PM.** (2016). Role of EWSR1 in meiotic initiation and progression. **CSHL Meeting on Germ Cells**, October 4 - 8, 2016, Cold Spring Harbor, NY.
7. Powers, N., Parvanov, ED, Baker, CL, Walker, M., **Petkov, PM.**, Paigen, K. (2016). PRDM9-dependent H3K36 trimethylation creates a recombination-specific epigenetic signature at hotspots. **GRC on Meiosis**. June 26 - July 1, 2016, Colby-Sawyer College, New London, NH.
8. **Petkov, PM.**, Parvanov, ED, Tian, H., Billings, T., Saxl, RL., Aithal, R., Krejci, L., Paigen, K., (2016). PRDM9 forms a multiprotein complex tethering recombination hotspots to the chromosomal axis. **GRC on Meiosis**. June 26 - July 1, 2016, Colby-Sawyer College, New London, NH.
9. Arat, S., Fine, A., Walker, M., Billings, T., Paigen, K., **Petkov, PM.**, Carter, G. (2016). Modeling the Multiple Zinc Finger Protein PRDM9 Binding with Affinity-seq. ISMB Conference, July 8-12, 2016, Orlando, FL.
10. **Petko M. Petkov**, Boucher, James, Baker, Christopher L., Billings, Timothy, Sargent, Evelyn, Parvanov, Emil D., Paigen, Kenneth (2013). The Y-chromosome histone demethylase KDM5d modifies recombination hotspot activity. **27th International Mammalian Genome Conference**, 15–18 September 2013, Salamanca, Spain
11. Petkova, Pavlina M.; Baker, Christopher L.; Walker, Michael; **Petkov, Petko M.**; Paigen, Kenneth (2013). Suppression and quantitative control of meiotic recombination hotspot

- activity. **27th International Mammalian Genome Conference**, 15–18 September 2013, Salamanca, Spain
12. Baker, Christopher L.; Walker, Michael; Kajita, Shimpei; **Petkov, Petko M.**; Paigen, Kenneth (2013). PRDM9-dependent modification organizes hotspot chromatin structure. **27th International Mammalian Genome Conference**, 15–18 September 2013, Salamanca, Spain.
 13. Pavlina M. Ivanova, Christopher E. Baker, **Petko M. Petkov**, Ken Paigen (2012). Initiation of meiotic recombination in humans by direct binding of PRDM9A to hotspots. **26th International Mammalian Genome Conference**, October 23-25, St Pete's Beach, FL, USA
 14. Timothy Billings, Emil D. Parvanov, Christopher E. Baker, Michael Walker, Kenneth Paigen, **Petko M. Petkov** (2012). DNA Binding Specificities of the Zinc Finger Recombination Protein PRDM9. **26th International Mammalian Genome Conference**, October 23-25, St Pete's Beach, FL, USA
 15. Christopher L. Baker, Michael Walker, **Petko M. Petkov**, Kenneth Paigen (2012). Specificity of PRDM9 DNA binding determines Histone H3 Lysine 4 trimethylation at human hotspots. 11th Gordon Research Conference on Meiosis, June 2-6, New London, NH.
 16. Lorin M Roiphe, **Petko M Petkov**, Kenneth Paigen (2010). A Comparison of Mammalian Recombination Hotspots in Four Mouse Strains at the Distal End of Chromosome 1. 10th Gordon Research Conference on Meiosis, June 13-18, New London, NH.
 17. **Petko M. Petkov**, Lorin Roiphe, Evelyn Sargent, Tim Billings, Terry Hassold, Karl Broman, Ken Paigen (2010). Chromosome location modulates recombination hotspot activity. 10th Gordon Research Conference on Meiosis, June 13-18, New London, NH.
 18. **Petko M. Petkov** (2009). Recombination Landscape, Genetic Background and Genes Regulating Hotspot Activity. Invited Talk, Keystone Symposium on Genome Instability and DNA Repair, Taos, NM, March 1 - 6, 2009.
 19. **Petkov, PM**, Lorin Petros, Emil Parvanov, Siemon Ng, Rose Madeira, Evelyn Sargent, Timothy Billings, Kenneth Paigen (2008). Recombination landscape and genetic background – evolutionary conservation of regional but not local rates. Oral presentation, **22th International Mammalian Genome Conference**, November 3-5, Prague, Czech Republic.
 20. Stefka Petkova, **Petko Petkov**, Beverly Paigen (2008). Genetic analysis of antibody-induced arthritis using C57BL/6J-ChrN^{PWD} consomic strains. Oral presentation, **22th International Mammalian Genome Conference**, November 3-5, Prague, Czech Republic.
 21. Emil Parvanov, Siemon Ng, **Petko Petkov**, Kenneth Paigen (2008). Trans-regulation of meiotic recombination hotspots by Rcr1. **22th International Mammalian Genome Conference**, November 3-5, Prague, Czech Republic.
 22. **Petkov, PM.** (2008). **Invited talk:** Recombination Anatomy of Mouse Chromosomes. **Meeting of the National Centers of Integrative and Systems Biology**, Princeton, Jun'08.
 23. Siemon Ng, **Petko M. Petkov**, Rosie Madeira, Emil Parvanov, Kenneth Paigen (2007). Distribution and control of recombination activities in mouse. **Meeting of the National Centers of Integrative and Systems Biology**, Boston, Jun'07.
 24. Emil Parvanov, **Petko M. Petkov**, Siemon Ng, Kenneth Paigen (2007). Trans-acting Factors Influence Several Mouse Meiotic Recombination Hotspots on Chromosome I. **Meeting of the National Centers of Integrative and Systems Biology**, Boston, Jun'07.
 25. **Petkov, PM (2007). Invited talk:** Recombination Landscape of Mouse Chromosomes. **10th International Meeting Spring in Lyon**, May 14-16, 2007, Lyon, France.
 26. **Petkov, PM**, KW Broman, J Szatkiewicz, K Paigen (2006). The origins of sex specificity of recombination. **20th International Mammalian Genome Conference**, November 12 – 15, 2006, Charleston, South Carolina, USA
 27. November 12 – 15, 2006, Charleston, South Carolina, USA
 28. **Petkov, P.M.**, K Sawyer, L Guccione, K Paigen (2005). High Resolution Mapping of Recombination on Mouse Chromosome 1. Oral presentation, **19th International Mouse Genome Conference**, November 4-8, 2005, Strasbourg, France.
 29. **Petkov, P.M.**, Y. Ding, M.A. Cassell, W. Zhang, E.E Sargent, S. Asquith, V. Crew, J.D Stockwell, K.A. Johnson, P. Robinson, V.E. Scott, M.V. Wiles (2003). Preparation Of A One-Megabase Dense SNP Map Covering One Hundred And Three Mouse Strains. **6th**

- International Meeting on Single Nucleotide Polymorphism and Complex Genome Analysis**, November 20-23, 2003, Westfield, VA, USA.
30. **Petkov, P.M.**, M.A. Cassell, C.J. Donnelly, R. Vonder Haar, M.V. Wiles (2002). Preparation of a genome-wide, 5 cM SNP map of fifty-six mouse strains. **5th International Meeting on Single Nucleotide Polymorphism and Complex Genome Analysis**, October 11-14, 2002, Reykjavik, Iceland.
 31. **Petkov, P.M.**, K. Kim, J. Sandhu, D.A. Shafritz, and M.D. Dabeva (2000). Identification of differentially expressed genes in stem/progenitor cells of fetal rat liver. **FASEB Summer Research Conference on Mechanisms of Liver Growth and Differentiation in Health and Disease**, July 29– August 3, 2000, Snowmass, CO.
 32. **Petkov, P.M.**, K. Kim, J. Sandhu, D.A. Shafritz, and M.D. Dabeva (2000). Identification of differentially expressed genes in stem/progenitor cells of fetal rat liver. **Department of Medicine Poster Session, Albert Einstein College of Medicine**, June 21, 2000, Bronx, NY.
 33. Dabeva, MD., **P.M. Petkov** , J. Sandhu, E. Laconi, E.Hurston, D.A. Shafritz (2000). Proliferation and differentiation of fetal liver epithelial progenitor cells transplanted into adult rat liver. **Experimental Biology 2000**, April 2000, San Diego, CA.
 34. Sandhu, J.P., **P.M. Petkov**, E.Hurston, R. Oren, E. Laconi, D.A. Shafritz, M.D. Dabeva (1999). Repopulation of the adult rat liver by transplanted fetal hepatoblasts. **50th Annual Meeting of AASLD**, Dallas, TX, November 5-9, 1999.
 35. Dabeva, MD., J. Sandhu, **P.M. Petkov**, E. Laconi, R. Oren, E.Hurston, D.A. Shafritz (1999). Differentiation and proliferation of fetal hepatoblasts in the liver of Fisher 344 rats. **8th Biennial International Congress on Liver Development, Gene Regulation and Diseases**, Orvieto, Italy, June 2-5, 1999.
 36. **Petkov, P.M.**, D.A. Shafritz, M.D. Dabeva (1999). Identification of differentially expressed genes in fetal rat liver. **8th Biennial International Congress on Liver Development, Gene Regulation and Diseases**, Orvieto, Italy, June 2-5, 1999.
 37. Oren, R., M. Dabeva, **P.M. Petkov**, S. Moss, S. Wang, E. Hurston, E. Laconi, P.R. Holt, S.N. Thung, D.A. Shafritz (1998). Role of thyroid hormone, in stimulating liver repopulation by transplanted hepatocytes. **49th Annual Meeting of AASLD**, Chicago, IL, November 4-10, 1998.
 38. Ivanova, P., B.C. Dunkov, **P. Petkov**, N. Harizanova, N. Potapenko, T. Ovchinnikova, K. Ralchev (1998). *Drosophila* dihydrolipoamide dehydrogenase. Protein structure and properties, cDNA sequence, and developmental expression. **Third International Symposium on Molecular Insect Science**, June 5-10, 1998, Snowbird, Utah, USA.
 39. Dabeva, M.D., E. Laconi, R. Oren, **P. Petkov**, E. Hurston, D.A. Shafritz (1998). AFP mRNA expression in regenerating liver: dedifferentiation of hepatocytes vs maturation of liver progenitor cells. **Experimental Biology'98**, Washington, DC.
 40. **Petkov, P.M.**, K.H. Ralchev, E.P. Neicheva (1991). Kinetic and immunochemical investigation on diaphorase-1 and diaphorase-2 from three *Drosophila* species. **12th EDRC**, September 2-6, Mainz, Germany.
 41. Ralchev, K.H., B.C. Dunkov, **P.M. Petkov**, T.G. Georgieva (1989). Two diaphorases from *Drosophila virilis*: purification, biochemical and immunochemical characterisation. **Proceedings of the International Symposium on Molecular Insect Science**, October 22-27, 1989, Tucson, AZ, USA.
 42. Ralchev, K.H., B.C. Dunkov, N.M. Ralcheva, E.P. Neicheva, **P.M. Petkov** (1988). *Drosophila* diaphorases - investigations and perspectives. **Jubilee Scientific Session**, 19-21 May 1988, Biological Faculty, Sofia, Bulgaria. (in Bulgarian).
 43. Ralchev, K.H., B.C. Dunkov, **P.M. Petkov** (1988). Genetic localisation and biochemical properties of diaphorase-1 in *Drosophila virilis*. **IV National Congress of Biochemistry and Biophysics**, 3-9 May 1988, Varna, Bulgaria. (in Bulgarian).