Dmitry A. Belostotsky

Associate Professor

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DOB: 09/13/1964, Moscow, USSR (now Russia) Citizenship: USA

Education

Ph.D. in Genetics (1990)
Institute of General Genetics, USSR Academy of Sciences, Moscow, and Institute of Cell Biology and Genetic Engineering, Ukraine Academy of Sciences, Kiev.

M.Sc. in Biochemistry (1986)
Kiev State University, Kiev, Ukraine and Institute of Molecular Genetics, USSR Academy of Sciences, Moscow.

Professional experience

09/01 - present	Associate professor, Department of Biological Sciences, University at Albany, Albany, NY (sabbatical leave 03/05-09/05, Brandeis University)
12/95 - 09/01	Assistant professor, Department of Biological Sciences, University at Albany, Albany, NY
07/91-11/95	Postdoctoral associate, Department of Genetics, University of Georgia, Athens, GA
09/90-06/91	Visiting scientist, Cambridge Laboratory, John Innes Centre for Plant Science Research, Norwich, England
04/90-09/90	Research scientist, Institute of General Genetics of the USSR Academy of Sciences, Moscow, and Institute of Cell Biology and Genetic Engineering of the Ukraine Academy of Sciences, Kiev

Fellowships and awards

- British Council and Foreign and Commonwealth Office Fellowship, 1990-1991

National grant review panels

- USDA National Research Initiative Competitive Grants Program, 2002 (2003, declined)
- NSF Posttranscriptional Mechanisms / Molecular and Cellular Biosciences, 2005

Publications

1. Dadashev SY, Bashkirov VI, Belostotsky DA, Karpova OI, Milshina NV, Bogdanov YF. Specific properties of DNA from isolated synaptonemal complexes from mouse. – Proceedings of the Academy of Sciences of the USSR (Rus.), 308:490-493, 1989.

2. Belostotsky DA, Ananiev EV. Characterization of relic DNA from the barley genome. – Theor. Appl. Genet., 80:374-380, 1990.

3. Belostotsky DA, Milshina NV, Ananiev EV. Cloning of "residual" DNA and determination of the primary structure of a barley-specific family of tandemly repeated sequences. – Cytol. Genet., 24:44-50, 1990.

4. Belostotsky DA, Kolchinsky AM, Ananiev EV. Genomic organization and chromosomal localization of the HvRT family of repetitive DNA sequences from barley. – Cytol. Genet., 24:57-61, 1990.

5. Thangavelu M, Belostotsky DA, Bevan MW, Flavell RB, Rogers HJ, Lonsdale DM. Partial characterization of the Nicotiana tabacum actin gene family: evidence for pollen specific expression of one of the gene family members. - Mol. Gen. Genet., 240:290-295, 1993.

6. Belostotsky DA, Meagher RB. Differential organ-specific expression of three poly(A)-binding protein genes from Arabidopsis thaliana. – Proc Natl Acad Sci USA, 90:6686-6690, 1993.

7. Lonsdale DM, Allen RL, Belostotsky DA, Ghose TK, Harvey AJ, Rogers HJ, Tebbutt SJ, Trick M. An analysis of the relative activities of a number of promoter constructs from genes which are expressed during late pollen development as determined by particle bombardment. - Plant Cell Rep., 15:154-158, 1995.

8. McKinney EC, Ali N, Traut A, Feldmann KA, Belostotsky DA, McDowell JM, Meagher RB. Sequence-based identification of T-DNA insertion mutations in Arabidopsis: actin mutants act2-1 and act4-1. - Plant J., 8:613-622, 1995.

9. Belostotsky DA, Meagher RB. Poly(A)-binding protein from Arabidopsis, PAB5, complements essential functions in yeast and is expressed in developing pollen, ovules, and early embryos. - Plant Cell, 8:1261-1275, 1996.

10. Palanivelu R., Belostotsky DA, Meagher RB. Conserved expression of Arabidopsis thaliana poly(A) binding protein 2 (PAB2), in distinct vegetative and reproductive tissues. - Plant J., 22:199-210, 2000.

11. Palanivelu R., Belostotsky DA, Meagher RB. Arabidopsis thaliana poly(A) binding protein 2, PAB2, functions in yeast translational and mRNA decay processes. - Plant J., 22:187-198, 2000.

12. Chekanova JA, Shaw RJ, Wills MA, Belostotsky DA. Poly(A) tail dependent exonuclease AtRrp41p from Arabidopsis thaliana rescues 5.8S rRNA processing and

mRNA decay defects of the yeast ski6 mutant, and is found in an exosome-sized complex in plant and yeast cells – J Biol Chem 275:33158-33166, 2000.

13. Chekanova JA, Shaw RJ, Belostotsky DA. Analysis of an essential requirement for the poly(A) binding protein function using cross-species complementation. – Curr. Biol., 11:1207-1214, 2001. ***This article was profiled by the Faculty of 1000 (www.facultyof1000.com/article/11516954/evaluation).***

14. Mulcahy D, Cresti M, Belostotsky D, Mariani T, Cheung A. Frontiers in Sexual Plant Reproduction (Editorial). – Sexual Plant Reprod., 14:1, 2001.

15. Chekanova JA, Dutko JA, Mian IS, Belostotsky DA. Arabidopsis thaliana exosome subunit AtRrp4p is a hydrolytic 3'-5' exonuclease containing S1 and KH RNA binding domains. - Nucleic Acids Res., 30:695-700, 2002.

16. Belostotsky DA. Unexpected complexity of poly(A) binding protein gene families in flowering plants: three conserved lineages that are at least 200 Myr old and possible auto- and cross-regulation. - Genetics, 163:311-319, 2003.

17. Chekanova JA, Belostotsky DA. Evidence that poly(A) binding protein has an evolutionary conserved function in facilitating mRNA biogenesis and export. - RNA, 9:1476-1490, 2003.

18. Reverdatto SV, Dutko JA, Chekanova JA, Hamilton DA, Belostotsky DA. Deadenylation of mRNA by PARN is essential for embryogenesis in higher plants. – RNA, 10:1200-1214, 2004. ***This article was profiled under "Top 10 headlines" by AgBiotechNet (CAB INTERNATIONAL, Wallingford, Oxon, UK), as well as selected by the Faculty of 1000 (www.facultyof1000.com/article/15247430/evaluation).***

19. Belostotsky DA. mRNA turnover meets RNA interference. Molecular Cell, 16:498-500, 2004.

20. Belostotsky DA, Rose AB. Plant gene expression in the age of systems biology: Integrating transcriptional and posttranscriptional events. Trends in Plant Science, 10:347-353, 2005.

21. Reverdatto SV, Chekanova JA, Skiba NP, Alonso JM, Brukhin VI, Ecker JR, Grossniklaus U, Belostotsky DA. The plant exosome: functional specialization of subunits, role in embryo/endosperm identity and imprinting, and novel RNA substrates. Submitted.

22. Chekanova JC, Belostotsky DA. mRNA turnover and microRNAs. Invited chapter for Methods in Molecular Biology, submitted to the publisher.

Patent

- Method to increase plant thermotolerance (pending, 2004).

Selected platform presentations at meetings and invited seminars (partial listing)

1. Conference "Translational control", Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, 09/13/98.
2. International Botanical Congress, Symposium "Posttranscriptional Control in Plant Gene Expression", St. Louis, MO (symposium chair), 08/05/99.
3. Conference "Eukaryotic mRNA processing", Cold Spring Harbor Laboratory, 08/24/01.
4. Brandeis University, Biology Department, Waltham, MA, 03/04/02.
5. McGill University, Biochemistry Department, Montreal, Quebec, Canada, 07/25/02.
6. Texas A&M University, Biology Department, College Station, TX, 01/27/03.
7. Conference "Eukaryotic mRNA processing", Cold Spring Harbor Laboratory, 08/22/03.
8. University of Massachusetts, Department of Biochemistry and Molecular Biology, Amherst, MA, 09/16/03.
9. Hartwick College, Department of Biology, Oneonta, NY, 11/20/03.
10. Miami University, Department of Botany, Oxford, OH, 04/23/04.
11. Emory University, Department of Biochemistry, Atlanta, GA, 10/07/04.
12. Frontiers in Sexual Plant Reproduction II, International Conference, Albany, NY, 10/15/04.
13. American Society for Cell Biology 44th Annual Meeting, Washington, DC, 12/08/04.
14. RNA Society Annual Meeting, Banff, Alberta, Canada, 05/24-29/05.
15. University of Toronto, Banting and Best Department for Medical Research, Toronto, Canada, 06/07/05.
16. The 14th Conversation in Biomolecular Stereodynamics, Albany, NY, 06/16/05.
17. 16th International Conference on Arabidopsis Research, Madison, WI. 06/15-19/05
18. American Society of Plant Biologists Annual Meeting, Seattle, WA, 07/18/05.
19. Society for Developmental Biology Annual Meeting, San Francisco, CA, 07/31/05.
20. University at Buffalo, State University of New York, Department of Biological Sciences, 09/30/05 (scheduled).
21. University of Massachusetts, Department of Plant and Soil Sciences, Amherst, MA, 10/04/05 (scheduled).

Current grant support (as PI)

1. Genetics and genomics of the plant exosome.
   US Department of Agriculture National Research Initiative Competitive Grants Program
   07/01/05-06/30/07, $167 000 total.

2. Role of the *S. cerevisiae* Pab1p in mRNA biogenesis.
   NIH R01 grant; priority score 150, percentile rank 13.0, projected start date Feb. 1, 2006
   $ 900 000 direct / $ 1 336 000 total requested.

3. Essential role of plant mRNA deadenylase in growth and development.
   USDA National Research Initiative Competitive Grants Program
   03/01/03-12/31/05, $150 000 total.

4. Mechanism of internal initiation of translation in plants.
   Binational (US-Israel) Agricultural Research and Development Fund
   12/01/05-11/30/08, $ 285 000 total ($ 142 500 US component)

5. Arabidopsis PABPs and heat stress response.
   National Science Foundation
   09/01/04-08/30/06, $104 122 total (with supplement).

6. Grants to support the conference "Frontiers in Plant Reproduction II":
   National Science Foundation, Conference Grant, $ 12 000 total
   US Department of Agriculture, Conference Grant, $ 3 000 total
   Pioneer Hi-Bred International, Inc., $ 1 500 total
   Leica Microsystems, Inc., $ 1 000 total
   Arcturus, Inc., $ 1 500 total
   University at Albany, Office of VP for Research, $ 2 500 total

Planned grant applications (as PI)

1. High definition composition of plant posttranscriptional regulatory machines
   Targeted for National Science Foundation, Plant Genome Research Program

2. Essential role of plant mRNA deadenylase in growth and development (renewal).
   USDA National Research Initiative Competitive Grants Program

3. Posttranscriptional control of plant reproductive development.
   National Science Foundation, Integrative and Organismal Biology panel

Collaborations

As of Fall 2005, our major collaborations include laboratories at Brandeis University / HHMI (Michael Rosbash), University of Zurich (Ueli Grossniklaus), Salk Institute (Joe Ecker), Tel Aviv University (Orna Elroy-Stein), Ordway Cancer Center in Albany (Igor Roninson), POSTECH in Pohang , Korea (Gynheung An), University of Toronto (Charlie Boone) and University of California at San Francisco (Nevan Krogan).

Teaching

Courses currently taught

BIO365 Biochemistry (undergraduate course required of all Biology majors), 100%
BIO504 Cell Biology (graduate course required of all M.S. and Ph. D. students), 50%

Complete list of all courses taught:

Undergraduate:

BIO365 Biochemistry
BIO369 Computer Applications for Molecular Biologists (under HHMI grant)
BIO323 Plant Physiology
BIO102N General Biology for non-majors

Graduate:

BIO524 Advanced Molecular Biology
BIO603 Topics in Genetics: Focus on Epigenetic Phenomena
BIO504 Cell Biology
BIO506 Molecular Biology of Plants
BIO629 Advanced Genetics
BMS606 Biology of Model Organisms

New courses developed:

Undergraduate:

BIO369 Computer applications for molecular biologists (100%)
BIO323 Plant Physiology (new course syllabus, jointly with Dr. J. Mascarenhas)

Graduate:

BIO603 Topics in Genetics: Focus on Epigenetic Phenomena (100%)
BIO629 Advanced Genetics (50%)
BMS606 Biology of Model Organisms: segment on Arabidopsis genomics (20% course)

Service

Organization of professional conferences and symposia

- 50 years of DNA and RNA methylation (Dr. Rollin Hotchkiss symposium), fall 1998, University at Albany, coorganizer.
- Symposium "Posttranscriptional Control in Plant Gene Expression" at the XVI International Botanical Congress, 8/3-9/99, St. Louis, Missouri. Organizer and chair of the Symposium.
- Frontiers in Sexual Plant Reproduction, International symposium, University at Albany, October 28-29, 2000, lead organizer.
- Frontiers in Sexual Plant Reproduction II, International symposium, University at Albany, October 15-17, 2004, lead organizer.

National grant review panels

- USDA National Research Initiative Competitive Grants Program, 2002 (2003, declined)
- NSF Posttranscriptional Mechanisms / Molecular and Cellular Biosciences, 2005

Ad hoc grants reviewer

- USDA National Research Initiative Competitive Grants Program, 1997 - present
- Department of Energy Molecular Biosciences, 1999 – present
- NSF Molecular and Cellular Biology, 2002 - present
- NSF Plant Genome, 2004 - present
- US-Israel Binational Science Foundation (BSF), 2004 - present

Reviewing manuscripts for PNAS, Plant Cell, Plant Physiology, Plant Journal, Gene, Sexual Plant Reproduction, Molecular and Cellular Biology, *RNA,* Journal of Theoretical Biology.

Membership in professional societies

American Association for the Advancement of Science, American Society for Cell Biology, American Society of Plant Biologists, *RNA* Society

Committees of the College Arts and Sciences

- University-wide Council on Research, Spring 2001 - 2004
- College of Arts and Sciences Academic Support Committee, fall 2000 - 2001

Departmental committees

- Seminar committee (Chair), 1999 - present
- Graduate recruitment committee, 1999 - 2002
- Computer applications committee, 1996 - present
- Greenhouse committee, 1996 - 2001
- Personnel and appointments committee, 1998, 2004
- Faculty search committees, spring 2000, spring 2001

Professional references

Michael Rosbash, Ph. D.

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