

Barak Blum, Ph.D.
Assistant Professor
Department of Cell and Regenerative Biology
University of Wisconsin-Madison School of Medicine and Public Health
1111 Highland Ave, Room 4551
Madison, WI 53705
Office: 608-265-5211
Email: bblum4@wisc.edu
Website: <https://blum.crb.wisc.edu>

EDUCATION AND TRAINING

B.Sc., Life Sciences, *cum laude* 1998 – 2001
Ben-Gurion University of the Negev, Israel
Research Advisor: Amir Sagi, Ph.D.

M.Sc., Medical Biochemistry, *cum laude* 2001 – 2004
The Hebrew University of Jerusalem, Israel
Research Advisor: Lea Reshef, M.D.

Ph.D., Genetics 2004 – 2009
The Hebrew University of Jerusalem, Israel
Research Advisor: Nissim Benvenisty, M.D., Ph.D.

Postdoctoral Research 2009 – 2015
Harvard University
Research Advisor: Douglas A. Melton, Ph.D.

ACADEMIC APPOINTMENTS

Assistant Professor 2015 – Present
Department of Cell and Regenerative Biology
University of Wisconsin-Madison

RESEARCH INTERESTS

1. Developmental and regenerative biology of the endocrine pancreas
2. Structure-function relationship in the islets of Langerhans
3. Functional role of β cell heterogeneity in the islets of Langerhans
4. Genetic and epigenetic control of β cell maturation and de-differentiation
5. Ontogeny of β cell failure in diabetes
6. Differentiation and maturation of human pluripotent stem cell-derived endocrine cells

GRANTS

Current

Sponsor: National Institutes of Health R01DK131438
Title: Genetic control of mature beta cell function and identity
PI: Barak Blum
Inclusive Dates: 12/01/2021 – 11/30/2025
Role: PI
Total award: \$1,250,000

Sponsor: National Institutes of Health R01DK121706
Title: Regulation of spatial organization and cell-cell communication in the islet of Langerhans
PI: Barak Blum
Inclusive Dates: 07/01/2019 – 06/30/2024
Role: PI
Total award: \$1,250,000

Sponsor: Jerome Lejeune Foundation GRT-2022A/2123
Title: Investigating Down syndrome related diabetes with a human trisomy 21 iPSC disease model
PI: Barak Blum
Inclusive Dates: 07/01/2022 – 06/30/2024
Role: PI
Total award: €40,000

Completed

Sponsor: WU-Madison Stem Cell and Regenerative Medicine Center Graduate Training Award
Title: Role of Roundabout receptors in the Islets of Langerhans
PI: Melissa Adams (Ph.D. student)
Inclusive Dates: 07/01/2019 – 06/30/2020
Role: Sponsor
Total award: \$39,642

Sponsor: Juvenile Diabetes Research Foundation 2-SRA-2018-621-S-B
Title: Regulation of human beta cell maturation
PI: Barak Blum
Inclusive Dates: 06/01/2018 – 05/31/2020
Role: PI
Total award: \$300,000

Sponsor: National Institutes of Health 1R56DK115837
Title: Genetic control of beta cell maturation and dedifferentiation
PI: Barak Blum
Inclusive Dates: 08/01/2018 – 07/31/2019
Role: PI

Total award: \$188,070

Sponsor: Wisconsin Alumni Research Foundation Fall Competition Award MSN215659

Title: Genetic control of beta cell dedifferentiation in diabetes

PI: Barak Blum

Inclusive Dates: 07/01/2018 – 06/30/2019

Role: PI

Total award: \$45,590

Sponsor: WU-Madison-Washington University DRC Pilot & Feasibility Award P30DK020579

Title: Robo receptors control the organization and function of the islets of Langerhans

PI: Barak Blum

Inclusive Dates: 06/01/2018 – 08/31/2020

Role: PI

Total award: \$40,000

Sponsor: UW-Madison ICTR Basic & Clinical Pilot Award

Title: Robo signaling controls the cellular organization of the islets of Langerhans in development and diabetes – implications to regenerative biology and tissue engineering

Inclusive Dates: 09/01/2017 – 08/31/2018

Role: PI

Total award: \$40,000

HONORS AND AWARDS

Undergraduate

Best Negev Industry Fellowship	2000
Dean's list for extreme excellence (<i>summa cum laude</i>)	2001
Scholarship from the Dr. Malka Wolf Foundation	2002

Graduate

Faculty Prize for Best M.Sc. Thesis in Medical Sciences	2004
Russek Travel Award for excellent graduate students, for participation in the International Society for Stem Cell Research (ISSCR) 4 th annual meeting, Toronto, Canada	2006
Best Poster Presentation Award, the 2 nd International Stem Cell Meeting of the Israel Stem Cell Society (ISCS), Tel Aviv, Israel	2008
ISSCR Travel Award, for participation in the International Society for Stem Cell Research (ISSCR) 6 th annual meeting, Philadelphia, USA	2008
Best Teaching Assistant Award at the Institute of Life Sciences, The Hebrew University of Jerusalem	2009
Menashe Marcus Prize for Excellent Graduate Student	2009

Post-Doctoral

EMBO Long-Term Post-Doctoral Fellowship	2009 – 2011
JDRF Post-Doctoral Fellowship	2011 – 2014

MEMBERSHIP IN PROFESSIONAL SOCIETIES

International Society for Stem Cell Research	2006 – 2019
Society for Developmental Biology	2019 – 2020
American Association for the Advancement of Science	2011 – 2015

PEER REVIEW ACTIVITIES

Editorial Boards Member

Editorial Board Member, <i>Diabetes</i>	2020 – present
Review Editor, <i>Scientific Reports</i>	2019 – present
Review Editor, Diabetes: Molecular Mechanisms (<i>Frontiers in Endocrinology</i>)	2019 – present

Ad Hoc Journals Reviewer

<i>American Journal of Physiology-Endocrinology and Metabolism</i>	2020
<i>Cell Chemical Biology</i>	2020
<i>Cell Proliferation</i>	2013
<i>Cell Reports</i>	2022
<i>Cell Systems</i>	2019
<i>Cell Transplantation</i>	2010, 2012
<i>Development</i>	2018
<i>Developmental Cell</i>	2021
<i>Diabetes</i>	2020, 2021(x5)
<i>Diabetologia</i>	2020
<i>eLife</i>	2021
<i>EMBO Molecular Medicine</i>	2020
<i>Endocrinology</i>	2016
<i>Frontiers in Endocrinology</i>	2020 (x3), 2021 (x3), 2022
<i>Genes & Development</i>	2019
<i>International Journal of Cancer</i>	2012
<i>iScience</i>	2022
<i>Methods</i>	2015
<i>Molecular Metabolism</i>	2021
<i>Nature Communications</i>	2010 (x2), 2016, 2017
<i>Peptides</i>	2021
<i>Reproductive BioMedicine Online</i>	2011
<i>Scientific Reports</i>	2018 (x2), 2019
<i>Stem Cell Reports</i>	2017
<i>Trends in Endocrinology and Metabolism</i>	2021

Ad Hoc Grant Reviewer

Broad-ISF Research Foundation	2016
Czech Science Foundation	2018

Department of Defense (PRMRP Panels)	2017, 2018, 2019 (x3), 2020, 2021 (x2)
Diabetes and Wellness Research Fund	2014
Diabetes UK	2017
Einstein Foundation Berlin	2019
German Research Foundation	2022
Human Islet Research Network (HIRN) Catalyst Award	2022
Integrated Islet Distribution Program (IIDP)	2022
Israel Science Foundation	2020 (x3)
JDRF-ISF Networks of Excellence in Type1 Diabetes Research	2020
NIH Cellular Aspects of Diabetes and Obesity (CADO) Study Section	2019
NIH NIDDK Catalyst Award (DP1)	2021
NIH NIDDK Diabetes, Endocrinology, and Metabolic Diseases (DDK-B) Study Section	2021(x2), 2022
NIH Special Emphasis Panel (ZRG1-CADO-A 07)	2019
The Israeli Ministry of Science (Life Sciences and Biomedical Research Program)	2020
University of Michigan Diabetes Research Center (MDRC)	2019, 2020
UC-Irvine ICTS	2018
UW-Madison HATCH	2016
UW-Madison ICTR	2016, 2018 (x2), 2019 (Chair), 2021
UW-Madison OVCERGE Research Forward competition	2022

Abstracts Reviewer

American Diabetes Association's Annual Scientific Sessions	2020, 2021
International Society for Stem Cell Research (ISSCR) Annual Meeting	2018 – 2022
ISSCR international symposium, "Stem Cells & Organoids in Development & Disease"	2018
ISSCR international symposium, "Stem Cells and Regenerative Medicine"	2019
Midwest Islet Club Annual Meeting	2017, 2018, 2021

TEACHING

Courses taught at UW-Madison

CRB #640, Graduate level, Spring semester, 6 Contact Hours	2016 – present
CRB #650, Graduate level, Spring semester, 4.5 Contact Hours	2017 – present
CRB #710, Graduate level, Fall semester, 4.5 Contact Hours	2019 – present
	(Course Director 2020 – present)
TOX #625, Undergraduate/Graduate level, Fall semester, 3 Contact Hours	2016 – present

Ph.D. Thesis Committee Member (Mentor, Program)

Chris Brandon (Alan Attie, Integrated Program in Biochemistry)	2015 – 2017
Dan Tremmel (Jon Odorico, Cellular and Molecular Biology)	2016 – 2022
Shannon Walsh (Corinne Henak, Comparative Biomedical Sciences)	2016 – 2020
Randee Young (Xin Sun, UW-Madison Genetics/UCSD) (Chair)	2017 – 2020
Hugo Lee (Feyza Engin, Integrated Program in Biochemistry)	2018 – present
HungTae Kim (Dawn Davis, Molecular and Cellular Pharmacology)	2018 – 2021
Rashaun Williams (Dawn Davis, Nutritional Sciences)	2018 – present

Stefan Pietrzak (Rupa Sridharan, Cellular and Molecular Biology)	2018 – present
Muhang Li (Deneen Wellik, Genetics) (Chair)	2019 – present
Joseph Blumer (Dawn Davis, Endocrinology and Reproductive Physiology)	2019 – present
Qingyuan Guo (Deneen Wellik, Cellular and Molecular Biology)	2021 – present
Spencer Tye (Deneen Wellik, Genetics)	2021 – present
Angela Olvera (Dawn Davis, MSTP and CMB)	2021 – present

Graduate Student Rotators (Program)

Dan Tremmel (Cellular and Molecular Biology)	Fall 2015
Lauren Hillers (Cellular and Molecular Biology)	Fall 2015
Chris Morrow (Molecular and Cellular Pharmacology)	Fall 2016
Amber Zhou (Molecular and Cellular Pharmacology)	Fall 2016
Aishwarya Rengarajan (Endocrinology and Reproductive Physiology)	Fall 2016
Katie Beverley (Endocrinology and Reproductive Physiology)	Fall 2016
Meareg Amare (Cellular and Molecular Biology)	Fall 2018
Audrey Marsh (Genetics)	Fall 2018
Xiaoya Zhang (Genetics)	Fall 2019

Graduate Student Trainees (Program)

Emily Cade (Molecular and Cellular Pharmacology, MSc)	2015 – 2019
Melissa Adams (Genetics, PhD)	2016 – 2022
Jennifer Gilbert (Genetics, PhD)	2017 – 2020
Bayley Waters (Endocrinology and Reproductive Biology, PhD)	2019 – present
Sutichot Dex Nimkulrat (Cellular and Molecular Biology, PhD)	2019 – present
Cyrus Sethna (Cellular and Molecular Biology, PhD)	2022 – present

Undergraduate and Post-Baccalaureate Trainees

Mike Maranan (Bio-152 and independent research credit)	9/2015 – 4/2016
Sophie Bernstein (Bio-152 and independent research credit)	11/2015 – 9/2019
Jesus Hinojosa Paiz (Stem Cell Certificate/independent research credit; McNair)	1/2016 – 5/2018
Erin Ard (Stem Cell Certificate/independent research credit)	1/2016 – 4/2018
Faith Bowman (Bio-152 and independent research credit; McNair)	9/2016 – 5/2018
Cyrus Sethna (Bio-152 and independent research credit)	9/2016 – 9/2019
Samantha Block (Bio-152)	1/2017 – 4/2017
Madison Kruk (Independent research credit)	9/2017 – 5/2018
Emily Maritato (Independent research credit)	9/2017 – 12/2018
Ben Brod (Bio-152 and independent research credit)	9/2018 – 12/2018
Hariharan Jayaraaman (Independent research credit)	12/2018 – present
Melissa Lyman (Post-Baccalaureate Intern)	5/2018 – 8/2019
Ron Fleminger (MCW Undergrad)	10/2018 – present
Lucy Kronzer (Independent research credit)	9/2019 – 6/2020
Mike Walz (Independent research credit)	2/2020 – 3/2020
Lauren Simone (Independent research credit)	9/2021 – 5/2022
Zoe Birman (Independent research credit)	9/2021 – present

Funding and Awards to Trainees

Melissa Adams (Ph.D. student, Genetics)

Genetics Training Grant (T32) 2016, 2019
 Selected Short Talk, *Keystone Symposium on Endoderm Development and Disease: Cross-Organ Comparison and Interplay, NM, USA* 2018
 UW-Madison SCRMC Graduate Training Award 2019
 Best Poster Award, *EASD Islet Study Group and Beta-Cell Workshop, Oxford, UK* 2019
 Selected Short Talk, *Midwest Islet Club Annual Meeting, MI, USA,* 2019
 First place (Gold Medal), Best Poster Award, *Gordon Research Conference: Understanding Cell Behavior and Environmental Influences in Pancreatic Diseases, ME, USA* 2019
 Schlimgen Award, Genetics PhD Program, UW-Madison 2021

Jennifer Gilbert (*Ph.D. student, Genetics*)

UW-Madison SciMed Graduate Training Program 2016, 2019
 Genetics Training Grant (T32) 2015, 2017
 Travel Award, *Society for Developmental Biology 78th Annual Meeting, Boston, MA* 2019
 Runner up, Best Poster Award, *Gordon Research Conference: Understanding Cell Behavior and Environmental Influences in Pancreatic Diseases, ME, USA* 2019

Emily Cade (*M.Sc. student, MCP*)

Selected Short Talk, *Midwest Islet Club Annual Meeting, WI, USA* 2017

Bayley Waters (*Ph.D. student, ERP*)

Poster Award, *Midwest Islet Club Annual Meeting, TN, USA* 2021
 ERP Training Grant (T32) 2021, 2022
 Best Short Talk Award, *Madison Scholars Symposium, UW-Madison, WI, USA* 2022

COMMITTEE AND ORGANIZATIONAL SERVICE

International

Session Chair, *Keystone Symposium on Endoderm Development and Disease: Cross-Organ Comparison and Interplay, NM, USA* 2018
 Discussion Leader, *Gordon Research Conference: Understanding Cell Behavior and Environmental Influences in Pancreatic Diseases, ME, USA* 2019
 Poster Judge, *Gordon Research Conference: Understanding Cell Behavior and Environmental Influences in Pancreatic Diseases, ME, USA* 2019

National

Organizing committee, *Midwest Islet Club Annual Meeting, WI, USA* 2017
 Session Chair, *Midwest Islet Club Annual Meeting, WI, USA* 2017
 Poster Judge, *Midwest Islet Club Annual Meeting, WI, USA* 2017

Institutional

CRB Faculty Search Committee 2016 – present (*Chair, 2017, 2020, 2022*)
 CRB Seminar Committee 2016 – 2019
 CRB Delegate to Faculty Senate 2016 – 2018
 CRB Awards Committee 2018 – 2019

CMB Graduate Program Admissions Committee	2018 – 2020 (<i>Chair, 2019, 2020</i>)
Faculty Advisory Board for the Gene Expression Core of the UW Biotech Center	2019 – present
UW-Madison Comprehensive Diabetes Center Organizing subcommittee	2020 – present
UW-Madison CRB Training Grant Steering Committee	2021 – present
CMB Graduate Program Faculty Advisor	2021 – present

INVITED ORAL PRESENTATIONS

Jawaharlal Nehru Centre for Advanced Scientific Research The Second Bangalore Stem Cell Workshop Bangalore, India <i>“Spontaneous and induced differentiation of human embryonic stem cells”</i>	11/2006
Israel Stem Cell Society (ISCS) Young Investigator Seminar Rehovot, Israel <i>“Characterization of human embryonic stem cell-induced teratomas”</i>	2/2008
3rd Annual Meeting of The European Consortium on Human Embryonic Stem Cells Rome, Italy <i>“The tumorigenicity of diploid and aneuploid human embryonic stem cells”</i>	5/2009
3rd International Stem Cell Meeting of the Israel Stem Cell Society (ISCS) Tel-Aviv, Israel <i>“Survivin and the tumorigenicity of human embryonic stem cells”</i>	6/2009
5th D-Cure Meeting Tel Aviv, Israel <i>“An operational definition of functional β-cells maturation for directed differentiation approaches”</i>	3/2011
Helmholtz Zentrum München Institute of Diabetes and Regeneration Research Munich, Germany <i>“An operational definition of functional β-cell maturation”</i>	6/2012
Keystone Symposium: Advances in Islet Biology Monterey, CA <i>“An operational definition for functional β-cell maturation”</i>	3/2012
EMBO Fellows Meeting Heidelberg, Germany <i>“Functional β-cell maturation is marked by expression of <i>Ucn3</i>”</i>	6/2012
Harvard University Medical School and Joslin Diabetes Center Boston Ithaca Islet Club Meeting	3/2014

Boston, MA
"A small molecule screen to reverse β -cell de-differentiation"

Sanford-Burnham Medical Research Institute 12/2014
 Diabetes and Obesity Research Center
 Orlando, FL
"The development, collapse and recovery of the functionally mature beta-cell state"

University of Wisconsin-Madison 1/2015
 Department of Cell and Regenerative Biology
 Madison, WI
"The development, collapse and resurrection of the mature beta cell state"

The University of Toledo 3/2015
 Department of Biological Sciences
 Toledo, OH
"The development, collapse and resurrection of the mature beta cell state"

Cincinnati Children's Hospital Medical Center 3/2015
 Division of Developmental Biology
 Cincinnati, OH
"The development, collapse and resurrection of the mature beta cell state"

University of California, San Diego 4/2015
 Department of Medicine and Sanford Consortium for Regenerative Medicine
 San Diego, CA
"The development, collapse and resurrection of the mature beta cell state"

Sanford Research Organization 6/2015
 Sanford Research Alex Rabinovitch Type 1 Diabetes Symposium
 Sioux Falls, SD
"From stem cells to billions of human beta cells"

University of Wisconsin-Madison 10/2015
 Stem Cell and Regenerative Medicine Center Seminar Series
 Madison, WI
"Differentiation, de-differentiation and re-differentiation of pancreatic β cells"

University of Wisconsin-Madison 11/2015
 Molecular and Cellular Pharmacology Graduate Program
 Molecular and Cellular Pharmacology Seminar
 Madison, WI
"Functional maturation: How do stem/progenitor cells 'know' they have reached their full differentiation potential?"

11th Annual Wisconsin Stem Cell Symposium 4/2016
 Stem Cells in the 4th Dimension: Mechanisms of Stem Cell Aging and Maturation

Madison, WI
"Differentiation, de-differentiation and re-differentiation of pancreatic β cells"
 *Keynote speaker

University of Wisconsin-Madison 4/2016
 Genetics Colloquium
 Madison, WI
"Differentiation, de-differentiation and re-differentiation of pancreatic β cells"

The Rank Prize Funds 10/2016
 Mini-Symposium on Nutrition: Implications to Ageing Processes and People
 Grasmere, UK
"Searching for biomarkers and genetic components of early β cells stress in obesity and diabetes"

University of Wisconsin-Madison School of Medicine and Public Health 2/2017
 Endocrine Grand Round
 Madison, WI
"Differentiation, de-differentiation and re-differentiation of pancreatic β cells"

University of Wisconsin-Madison 7/2017
 Wisconsin Stem Cell Roundtable (WiSCR)
 Madison, WI
"Developmental and regenerative biology of the endocrine pancreas"

The Hebrew University of Jerusalem 4/2018
 The Azrieli Center for Stem Cells and Genetic Research
 Scientific Symposium Celebrating Benvenisty Lab's 25th Anniversary
 Jerusalem, Israel
"Organogenesis and functional maturation of the islet of Langerhans"

University of Wisconsin-Madison 1/2019
 Department of Nutritional Sciences
 Nutritional Sciences Seminar
 Madison, WI
"Organogenesis and functional maturation of the islet of Langerhans"

Medical College of Wisconsin 10/2019
 Department of Biochemistry
 Milwaukee, WI
"To get to an islet, take the second roundabout - role of Robo receptors in morphogenesis and function of the islet of Langerhans"

University of Chicago 12/2019
 Section of Endocrinology, Diabetes and Metabolism
 Chicago, IL
"Role of Robo receptors in morphogenesis and function of the islet of Langerhans"

Keystone Symposium: Islet Biology: From Gene to Cell to Micro-Organ Santa Fe, NM <i>“Roundabout receptors regulate three-dimensional architecture and facilitate synchronized Ca²⁺ oscillations in vivo in the islet of Langerhans”</i>	1/2020
University of Arizona Department of Cellular and Molecular Medicine Tucson, AZ <i>“Role of Robo receptors in morphogenesis and function of the islet of Langerhans”</i>	2/2020
University of California, Santa Barbara Department of Molecular, Cellular and Developmental Biology Santa Barbara, CA <i>“Role of Robo receptors in islet morphogenesis and function”</i> <i>(On line due to covid-19)</i>	4/2020
University of Sydney Australian Islet Biology Lunchtime Seminar Series Sydney, NSW, Australia <i>“Robo receptors and their ligand Slit in morphogenesis and function of the islet of Langerhans”</i> <i>(On line)</i>	6/2020
American Diabetes Association 80 th Annual Meeting Chicago, IL <i>“Building an Islet—Location, Location, Location!”</i> <i>(On line due to covid-19)</i>	6/2020
UT Southwestern Medical Center Department of Cell Biology Dallas, TX <i>“Robo receptors and their ligand Slit in morphogenesis and function of the islet of Langerhans”</i> <i>(On line due to covid-19)</i>	9/2020
University of Pittsburgh Department of Developmental Biology Pittsburgh, PA <i>“Robo receptors and their ligand Slit in morphogenesis and function of the islet of Langerhans”</i> <i>(On line due to covid-19)</i>	10/2020
Stanford University Stanford Diabetes Research Center Islet Affinity Group Research Meeting Stanford, CA <i>“Robo receptors and their ligand Slit in morphogenesis and function of the islet of Langerhans”</i> <i>(On line due to covid-19)</i>	2/2021
University of Colorado Barbara Davis Center for Diabetes	2/2021

Aurora, CO

“*Robo receptors and their ligand Slit in morphogenesis and function of the islet of Langerhans*”
(On line due to covid-19)

University of Wisconsin-Madison 3/2021

2nd Annual UW-Madison Diabetes Research Day

Madison, WI

“*Organogenesis and differentiation of the islet of Langerhans*”
(On line due to covid-19)

Virtual Visiting Professor Islet Research program 2/2022

Islet Research Seminar Series

“*Robo receptors and their ligand Slit in morphogenesis and function of the islet of Langerhans*”
(On line)

Alberta - British Columbia Islet Workshop 2/2022

Silver Star Mountain Resort, Vernon, British Columbia, Canada

“*Organogenesis and differentiation of the islet of Langerhans*”
(*Invited Keynote Speaker*) (postponed to 2/2023 due to covid-19)

BIBLIOGRAPHY

Original Peer-Reviewed Publications

Waters, B.J. and **Blum, B.**, *Axon guidance molecules in the islets of Langerhans*. **Frontiers in Endocrinology** (*In press*) (2022) (Invited Mini-Review)

Adams, M.T. and **Blum, B.**, *Determinants and Dynamics of Pancreatic Islet Architecture*. **Islets** **14**:82-100 (2022) (Review)

Nimkulrat, S.D., Ni, Z., Brown, J., Kendzioriski, C., **Blum, B.** *The Anna Karenina model of β cell maturation in development and their dedifferentiation in type 1 and type 2 diabetes*. **Diabetes** **70**:2058-2066 (2021)

Adams, M.T., Reissaus, C.A., J.M., Dwulet, Jin, E., Joseph M. Szulczewski, J.M., Lyman, M.R., Sdao, S.M., Nimkulrat, S.D., Ponik, S.M., Merrins, M.J., Benninger, R.K.P., Mirmira, R.G., Linnemann, A.K., **Blum, B.** *Reduced synchronicity of intra-islet Ca^{2+} oscillations in vivo in Robo-deficient β cells*. **eLife** **10**:e61308 (2021)

Sdao, S.M., Ho, T., Poudel, C., Foster, H.R., De Leon, E.R., Adams, M.T., Lee, J.-H., **Blum, B.**, Rane, S.G., Merrins, M.J. *CDK2 limits the highly energetic secretory program of mature β -cells by restricting PEP cycle-dependent KATP channel closure*. **Cell Rep.** **34**:108690 (2021)

Gilbert, J.M., Adams, M.T., Sharon, N., Jayaraaman, H., **Blum, B.** *Morphogenesis of the islets of Langerhans is guided by extra-endocrine Slit2/3 signals.* **Mol Cell Biol.** MCB.00451-20 (2020) (**Editors' Pick**)

Adams, M.T., Gilbert, J.M., Hinojosa Paiz, J., Bowman, F.M., **Blum, B.** *Endocrine cell sorting and mature architecture in the islets of Langerhans require expression of Roundabout receptors in β cells.* **Scientific Reports** 8, 10876 (2018)

Blum, B.*, Roose, A.N., Barrandon, O., Maehr, R., Arvanites, A.C., Davidow, L.S., Davis, J.C., Peterson, Q.P., Rubin, L.L., Melton, D.A.* *Reversal of β cell de-differentiation by a small molecule inhibitor of the TGF β pathway.* **eLife** 3:e02809 (2014)

***Corresponding authors**

Blum, B., Hrvatin, S., Schuetz, C., Bonal, C., Rezania, A., Melton, D.A., *Functional beta-cell maturation is marked by an increased glucose threshold and by expression of urocortin 3.* **Nat. Biotechnol.** 30:261-264 (2012)

***Recommended by Faculty of 1000**

Sadacca, L.A., Lamia, K.A., deLemos, A.S., **Blum, B.**, Weitz, C.J., *An intrinsic circadian clock of the pancreas is required for normal insulin release and glucose homeostasis.* **Diabetologia** 54:120-124 (2010)

Blum, B.* and Benvenisty, N.*, *The tumorigenicity of diploid and aneuploid human pluripotent stem cells.* **Cell Cycle** 8:3822-3830 (2009)

***Corresponding author**

Straussman, R., Nejman, D., Roberts, D., Steinfeld, I., **Blum, B.**, Benvenisty, N., Simon, I., Yakhini, Z., Cedar, H., *Developmental programming of CpG island methylation profiles in the human genome.* **Nat. Struct. Mol. Biol.** 16:564-571 (2009)

Blum, B., Bar-Nur, O., Golan-Lev, T. and Benvenisty, N., *The anti-apoptotic gene survivin contributes to teratoma formation by human embryonic stem cells.* **Nat. Biotechnol.** 27:281-287 (2009)

Blum, B.* and Benvenisty, N.*, *The tumorigenicity of human embryonic stem cells.* **Adv. Cancer Res.** 100:133-158 (2008)

***Corresponding author**

Blum, B., and Benvenisty, N., *Clonal analysis of human embryonic stem cell differentiation into teratomas.* **Stem Cells** 25:1924-1930 (2007)

Adewumi, O., Aflatoonian, B., Ahrlund-Richter, L., Amit, M., Andrews, P.W., Beighton, G., Bello, P.A., Benvenisty, N., Berry, L.S., Bevan, S., **Blum, B.**, et al. *Characterization of human embryonic stem cell lines by the International Stem Cell Initiative.* **Nat. Biotechnol.** 25:803-816 (2007)

Blum, B., and Benvenisty, N., *Differentiation in vivo and in vitro of human embryonic stem cells.* **In: Stem cells – from bench to bedside** World Scientific Publishing. pp. 123-143 (2005)

Cassuto, H., Kochan, K., Chakravarty, K., Cohen, H., **Blum, B.**, Olswang, Y., Hakimi, P., Xu, C., Massillon, D., Hanson, R.W. and Reshef, L., *Glucocorticoids regulate transcription of the gene for phosphoenolpyruvate carboxykinase in the liver via an extended glucocorticoid regulatory unit.* **J. Biol. Chem.** 280:33873-33884 (2005)

Reshef, L., Olswang, Y., Cassuto, H., **Blum, B.**, Croniger, C.M., Kalhan, S.C., Tilghman, S.M., Hanson, R.W., *Glyceroneogenesis and the triglyceride/fatty acid cycle.* **J. Biol. Chem.** 278:30413-30416 (2003)

Olswang, Y.*, **Blum, B.***, Cassuto, H.*, Cohen, H., Biberman, Y., Hanson, R.W. and Reshef, L., *Glucocorticoids repress transcription of the phosphoenolpyruvatecarboxykinase (GTP) gene in adipocytes by inhibiting its C/EBP-mediated activation.* **J. Biol. Chem.** 278:12929-12939 (2003)

***These authors contributed equally to this work**

Invited Previews and Commentaries

Gilbert, J.M. and **Blum, B.**, *Synaptotagmins Tweak Functional β Cell Maturation.* **Dev. Cell** 45:284-286 (2018) (Invited preview)