The Matrix Letter

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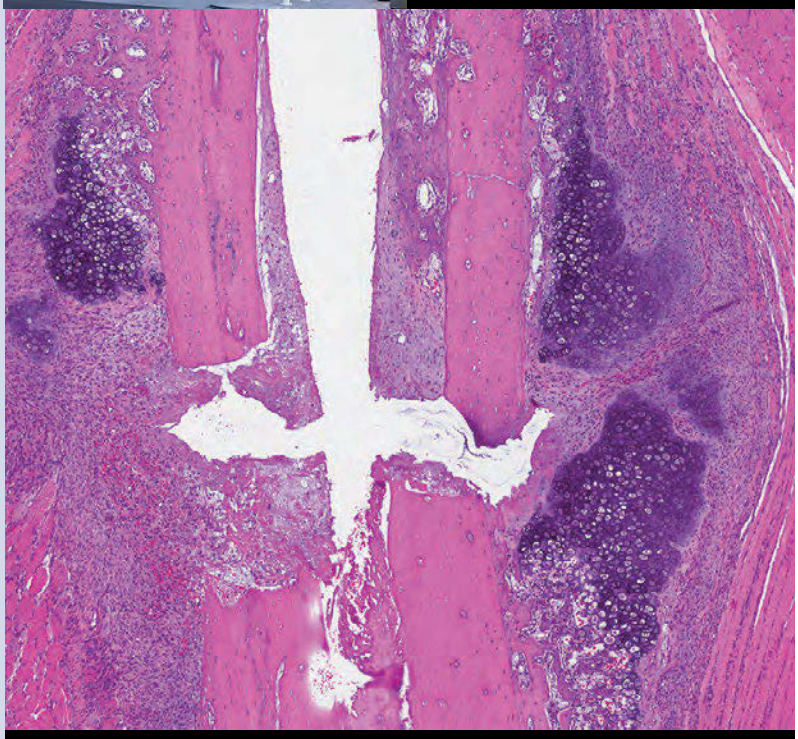
ASMB 2014 Meeting Schedule Inside!



Biglycan in Bone Repair

Contents

Welcome to Cleveland

It is an exciting time, as ASMB prepares for our biennial meeting in Cleveland next month. The planning is complete; the program set. Now it is time for anticipation. This is true whether you are an old grognard on the program committee or a new scientist planning the last changes to your poster. It is our grand meeting.

The progam iteslf promises to be excellent, with a keynote address by Jack Dixon and coverage of just about every area of matrix biology you could hope for, from cancer to development to regenerative medicine, from ECM structure to integrin function, and from physiological roles to aberrant ECM production, fibrosis and genetic diseases of the matrix. And more than this, ASMB will make the first ever Iozzo award at the 2014 meeting. It truly promises to be an historic meeting.

On the pages that follow, you'll find an overview of the scientific program. As you leaf through it, you'll be able to appreciate the content and begin to plan your meeting accordingly. Many of our sponsors will be in attendance, and we gratefully list all of them in these pages. You can stop by their tables during the meeting.

However, we absolutely need to provide a special thank you for the long-term support we've received from NIH-NIAMS, who are once again our biggest contributor for the ASMB meeting. We thank them not only for the financial support, but for continuing to share our vision.

For those of you meeting old friends at ASMB, consider walking to Lake Erie, Public Square, or Playhouse Square as entertaining and memorable venues to talk. Certainly, there will be many quiet places to sit at the Marriott, but let me encourage you to enjoy the city.

Best wishes,

Suneel

Scientific Program

-ASMB 2014, Cleveland, OH-

Sunday, October 12th

1:00-3:00 pm Guest Symposium I

Tissue Engineering & Regenerative Medicine International Society

SIG 1: The New Biology of the Small Leucine Rich Proteoglycans. Sponsored by LifeCell

SIG2: Transglutaminases, ECM and Cell Signaling

***

3:30-5:30 pm Guest Symposium II

The International Society for Hyaluronan Sciences

SIG 3: ECM Turnover & Tissue Remodeling During Embryogenesis

SIG 4: The Physics and Chemistry of Fibronectin

6:00-7:00 pm **Opening Reception**

7:00-7:15 pm President's Welcome

Keynote Lecture (Jack Dixon)

Monday, October 13th

7:30-8:30 am Career Mentoring Breakfast

RSVP Required

8:30-10:00 am **Plenary I**

New Developments in ECM Structure & Function

10:30-12:00 pm **Plenary II**

Novel Insights on Cell-Matrix Interactions

12:30-2:00 pm **Poster Session I**

Lunch taken at Posters

***

2:30-4:00 pm **Concurrent Sessions**

Concurrent A: *Basement Membrane: Assembly, Function and Disorders.*

Concurrent B: *Skin Biology and Wound Healing.*

Concurrent C: *Cardiovascular Biology and Disease.*

***

4:30-6:00 pm **Concurrent Sessions**

Concurrent D: *Matrix Receptors, Adhesion and Migration*

Concurrent E: *ECM Biosynthesis, Assembly and Post-translational Modification*

Concurrent F: *ECM and the Musculoskeletal System*

Tuesday, October 14th

7:30-8:30 am Women Mentoring Women Breakfast

RSVP Required

8:30-10:00 am **Plenary III**

Morphogenesis

10:30-12:00 pm **Plenary IV**

Genetic Disorders

of ECM, ECM Receptors and ECM-Cell Continuum

12:30-2:00 pm **Poster Session II**

Lunch taken at Posters

***

2:30-4:00 pm **Concurrent Sessions**

Concurrent G: *ECM as a mediator of Host-Pathogen Interactions and Immune Responses.*

Concurrent H: *Proteoglycans & Glycobiolog*

Concurrent I: *Tumor Microenvironment.*

***

Tuesday, October 14th

4:00-5:30 pm Concurrent Sessions

Concurrent J: *Cellular Regulation by ECM/Growth Factor Regulation*

Concurrent K: *Integrating ECM and Cell Biomechanics*

Concurrent L: *Proteinases and their Inhibitors*

***

7:00-10:00 pm Banquet

The Rock 'n Roll Hall of Fame

Wednesday, October 15th

9:30-11:00 am **Plenary V**

Translating the Basics to Patient Care

11:30-1:00 **Concurrent Sessions**

Concurrent M: *Neural and Ocular ECM: The Next Frontier*

Concurrent N: *Stem Cell Biology & Regenerative Medicine*

Concurrent O: *Fibrosis and Chronic Disorders*

***

Biennial Meeting of the
American Society for Matrix Biology

*October 12-15, 2014 * Marriott Key Center * Cleveland, OH*

More Meeting Notes

Mentoring Sessions

This year's meeting features two great mentoring opportunities. On Monday, October 13, 7:30-8:30 am, join us for a Career Mentoring Breakfast. On Tuesday, October 14, 7:30-8:30 am, join us for a Women Mentoring Women Breakfast. These sessions feature informal conversations with ASMB members offering fellowship and words of wisdom. ***These events are complimentary, and breakfast is included for both events, but space is limited.*** Email us at *asmb@faseb.org* to sign up.

Don't Forget to Reserve Your Hotel Room

Accommodations are available at the meeting hotel – the Marriot Key Center Hotel in Cleveland, Ohio. ASMB has secured a group rate of $162 per night at this downtown hotel. Special student rate $139 - limited availability! Please follow the link below to make your reservations online. Rooms must be reserved by September 19, 2014 in order to receive the group rate.

Local Information

Wondering how to get to the hotel from the airport? Curious what sites are walkable from the hotel? What is there to do in Cleveland? Check out the ASMB website for travel information, local attractions and of course – ASMB banquet information.

The Banquet

This year's ASMB banquet will be held at the Rock N' Roll Hall of Fame. ASMB underwrites the majority of the cost of this banquet so that members can enjoy a social evening together. Full admission to the Rock N' Roll hall of fame (a $22 value) is included in the cost of the ticket.

Food, drink, entertainment – and your ASMB colleagues! Don't miss it. Ticket purchase is required and must be done IN ADVANCE. We've already sold more than 130 tickets! Don't be dissappointed.

2014 Meeting Sponsorship

Thank-you from the membership of the ASMB to all of our generous sponsors. They make our meeting possible.

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Matrix Interactions

ASMB News and Announcements in Brief

Positions Available, Online

Are you looking for a new position in Matrix Biology? The Careers page on the ASMB website could be a good place to begin your search. ***http://asmb.net/careeropps.php.***

Do you have a position that is perfect for somebody with matrix biology experience? Simply email a copy of the announcement to Kendra LaDuca at ***asmb@faseb.org*** *and we will be happy to post the position for you.*

Fall Elections

If you know of someone that would make a good addition to the ASMB council, now is the time to forward your suggestion to ASMB. We are assembling candidates for the upcoming fall elections. Email us as ***asmb@faseb.org*** *or talk to us at the registration table at the ASMB meeting in Cleveland.*

Upcoming Events

September 24-27, 2014
TERMIS-Asia Pacific
Daegu, Korea
www.http://www.termis.org/ap2014

September 25-27, 2014
9th International Research Symposium on Marfan Syndrome
Paris, France
www.marfan.org/resources-answers/researchers/scientific-meetings/symposium

October 12-15, 2014
American Society for Matrix Biology
Cleveland Ohio
http://www..asmb.net/2014_meeting.php

Marriott Key Center, Cleveland

March 30-31, 2015
Location, Location, Location: The Matrix and the Microenvironment
Oxford, UK
www.bsmb.ac.uk/meetings-index/meetingslocation/

Banquet Tickets Selling Well...

The banquet this year takes place at the the Rock N' Roll Hall of fame (pictured to the right). Accordingly, tickets have been selling well and this promises to be a truly memorable event. More than 130 tickets were sold by the end of August.

Don't forget to book yours in advance so that you won't have to miss out on the fun. Only a set number of tables will be available, and last minute tickets will be limited, if available at all. ***http://www.asmb.net/2014_meeting.php***

Visit ***www.rockhall.com*** *for a preview.*

An Interview with In-San Kim

ASMB has enjoyed strong support from Korea since our inaugeral meeting in Houston, and there will certainly be a strong contingent of our Korean Colleagues in Cleveland. The ***Matrix Letter*** (ML) talked to Dr. In-San Kim, M.D., Ph.D., one of the pioneers in organizing Korean matrix biologists. Dr. Kim chatted with us after his recent move to the Biomedical Research Institute of the Korean Institute for Science and Technology, KIST, in Seoul. We talked about the state of Matrix research in Korea and of Matrix Biology in general.

ML: What prompted the initial formation of the Korean Society?

ISK: As you might understand, most Korean biologists are primarily interested in genes and cells. It was very difficult to find biologists who are working on the matrix. However, I found a few matrix-focused investigators including Eok-Soo Oh, who has been working on syndecan; Seung-Taek Lee, on metalloproteinases; Jung-Weon Lee, on integrins. I personally had been working on a new matrix protein (TGFBI) and cell adhesion molecules (Stabilin-1 & -2). We got together to establish a small group that became the seed for KSMB. In addition, there was a large impact from Renato Iozzo and Pyung Woo who visited Korea in 2008. They helped inspire us to establish the Korean Society for Matrix Biology.

Dr. Kim (center) with Drs. Iozzo and Woo at the Disease Microenvironment Meeting in 2008.

ML: Korean Scientists have been active in the field of the extracellular matrix for a long time, and have attended ASMB meetings since our society was formed. When was KSMB founded?

ISK: Our society was officially founded in May 2009, although local and small groups have been active before that time. Our society became a chapter of Korean Society for Biochemistry and Molecular Biology (KSBMB) and is formed of around 360 members, including PI (about 70 members) and students.

ML: That's an accomplishment. And you've kept the members busy?

ISK: Yes, that's fair to say. Just since 2009, we have had 22 domestic symposiums, 3 international symposiums and the occasional workshops that take place in the summer periods.

ML: What are the plans to develop this society, as you move forward?

ISK: KSMB has been growing steadily, and trying to contribute to the matrix biology field not only domestically but also internationally. We all agree that we need do our best to recruit excellent young investigators and students who truly understand the importance of matrix biology. This is an important goal. We also strongly believe that funding this field would have great benefits in both established scientists and students. So we have to justify enlarging budgets for matrix biology. Although overvaluing translational research has become an issue, we need to prove that investing into matrix biology will become an important enterprise in the near future.

ML: Will Korean scientists continue to take part in ASMB and other societies?

ISK: KSMB is ready and willing to actively participate in ASMB, as well as in other societies.

KSMB will, in fact, be hosting the "9th International Conference on Proteoglycans and 10th Pan Pacific Connective Tissue Societies" in Seoul. This will take place in August of 2015. Since the conference will combine all aspects of matrix-related research, we will take this opportunity to expand our society.

In addition, KSMB hopes to arrange a satellite meeting at the next ASMB meeting in 2016.

ML: What do you think will be key areas for future research by the next generation of matrix biologists?

ISK: In the past years, biologists have been focusing on the nature of cells, or of the matrix. Now we need to pay more attention to the interaction of cells and matrix. For instance, the nurturing of cells by matrix, and the supbsequent adaptation of cells to the changing of the extracellular environment. How cells and matrix work together to make complex adaptive systems in the face of perturbation by various endogenous and exogenous changes will continue to be a significant focus.

ML: On a more personal level, what was the impetus that started your work on the matrix?

ISK: My work was related to matrix biology when I joined Dr. Benoit de Crombrugghe's lab. Since I came back to Korea, I came across work on TGFBI (TGF β-induced protein/βig-h3).

Our group identified that this protein had motifs interacting with a few integrins, including $\alpha 3\beta 1$, $\alpha v\beta 3$ and $\alpha v\beta 5$; thereby we discovered that it carried several biological functions based on the interaction with integrins, and it was found to also contribute to tumor angiogenesis, thrombosis and sepsis. TGFBI has a FAS1 domain, which is also found in other proteins, including stabilin-1 and -2. These two similar proteins have characteristic features of cell adhesion molecules.

Our group reported that they function as a receptor for phosphatidyl serine, which is known as a "eat-me signal" for the clearance of apoptotic cells. More recently, we found that stabilin-2 mediates cell-cell fusion, a critical event in myotube formation. Currently, we are working on the *in vivo* functions and the disease-related functions of these FAS1 domain family proteins using knock-out mice.

ML: Very interesting work. We are looking forward to seeing you in person next month.

ISK: I'll see you in Cleveland.

-dgs

Historical Spot

Scurvy: When Collagens Fail...

J. Stupack* & R. Graf**
*Vertex Pharmaceuticals
**Sanford|Burnham Medical Research Institute
School of Graduate Sciences

Vitamin C is a reducing agent required for the synthesis of collagen. In primates, the absence of a critical enzyme (gulonolactone hydroxylase, GULO) prevents endogenous synthesis of vitamin C, effectively creating a dietary requirement for the most abundant class of proteins in our body; collagens (1). While vitamin C is a key cofactor for several enzymes, in matrix biology it is critical for hydroxylases that act on proline and lysine residues in collagen. For comparison, patients with Ehlers-Danlos syndrome (type VI) tend to lose one allele of one of these key collagen synthesizing enzymes (lysyl hydroxylase) (2).

Dietary restriction of this key vitamin results in Scurvy, a progressive disease in which the loss of antioxidant properties and the local failure of collagens conspire in a lethal manner. Untreated, Scurvy is always fatal. Treatment requires a source of ascorbic acid, the classical name for vitamin C. The name given originally by Gyorgi, reflects its anti-Scurvy role, as '*scorbic*' is the latin reference to scurvy (3).

Skin blotching poor healing, bleeding from mucous membranes as vascular integrity is lost; these are initial symptoms of Scurvy. Continued deficiency results in defects in hair and nail formation, skin blotching and the blistering, loss of teeth and death. Historically, the disease was common in deep water navies, traders or exploration vessels, as well as among privateers, owing to the requirements for storage of dried grains and dried meats on long ocean voyages. It was suggested by Scottish physician James Lind that it accounted for the greatest number of maritime deaths of any cause (4). And the pirate appellation '*Scurvy Dog*'? It's not possible, since *canis lupus familiaris* have the GULO gene (5). Dog meat was even a potential source of rescue for a Scurvy-stricken officer. Lind performed the first ever clinical trial; citrus was the agent.

Tissues in which collagen turnover is high are first affected, explaining the progressive symptoms associated with collagen loss. It is interesting to speculate that ascorbic acid levels might impact collagen-deposition diseases or homeostatic barrier function, just as they influence wound healing. In the case of cancer (at least), excess ascorbic acid is reported to promote increased matrix deposition and anti-metastasis barrier function (6). Might other pathologies be affected?

(1) http://emedicine.medscape.com/article/125350-overview
(2) Brinckmann et al., Arch Dermatol Res, 290:181, 1998.
(3) http://www.medterms.com/script/main/art.asp?articlekey=33370
(4) http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1742547/
(5) http://www.ncbi.nlm.nih.gov/gene/?term=GULO+canis
(6) Cha et al., Exp Oncol 33:226, 2011, Cha et al, Int J Canc 42:55, 2013.

The Role of Biglycan in Skeletal Healing

Megan L Noonan, Marian F. Young
Craniofacial and Skeletal Diseases Branch, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, Maryland

Biglycan is an extracellular matrix proteoglycan and a member of the small leucine-rich proteoglycan (SLRP) family that has an important role in bones, cartilage, and tendons. Mice deficient in biglycan have reduced bone mass and a slower growth rate. As these Bgn-KO mice age, they display an osteoporosis-like phenotype [1]. SLRPs such as biglycan can bind to collagen, which makes up over 90% of the extracellular matrix in bone. Biglycan-deficient mice have defects in their type I collagen fibrils [2], as well as reduced Col1a1 [3] protein and mRNA expression, which is thought to contribute to the osteoporosis (low bone mass) phenotype.

More recently, biglycan has been shown to play an important role in skeletal healing as well. In the US, over 2 million osteoporosis-related fractures occur each year [4], and with an ever-increasing aging population, there is a growing need for more effective treatments that can be done in a timely and efficient manner. We recently showed that biglycan is highly abundant in the callus of healing bones. As predicted from this observation, we found that mice deficient of biglycan have delayed fracture healing as compared to wild-type mice, presenting with a smaller callus and less cartilage formation (Figure 1). They also have bones that are more easily fractured, showing that biglycan is necessary for normal bone formation and healing [3].

BMP-2 is a well-known protein used clinically to aid in bone healing. It is also necessary for broken bones to begin healing [7]. Previous work from our lab showed biglycan is necessary for BMP-2 to bind to bone-forming cells, as well as for stimulating BMP-4-induced osteoblast differentiation and eventual bone formation [5]. Recently, recombinant biglycan was used in conjunction with BMPs to improve osteogenesis in alveolar (jaw) bone [6] providing further proof it could be useful to improve the healing of fractured bones.

After a callus is formed, the next critical phase of fracture healing is vascular invasion in the healing callus, which allows minerals and nutrients to aid in the healing process. Biglycan has again demonstrated its importance in fracture healing by being a necessary component for normal angiogenesis. Bgn-KO mice have less vascular invasion in the healing callus than wild-type mice [3], as well as less mRNA expression of VEGFa [3], PCAM, and Hif1-α (unpublished data). While biglycan was shown to directly bind to VEGFa, its role in regulating angiogenesis remains unclear and may likely involve additional factors yet to be identified.

Besides biglycan, there are many other proteoglycans that are becoming increasingly important in bone and other tissues. Our lab is continuing to study the role of biglycan in fracture healing with respect to angiogenesis. Considering biglycan was shown to have important roles in regulating inflammation [8], it is also possible that early phases of bone healing may be influenced by biglycan. Experiments are underway in collaboration with Dr. Liliana Schaefer's lab to test this possibility. In summary, biglycan is emerging as a critical component of the skeletal system that has potential for clinical benefit to improve fracture healing. It appears to function during several phases of the healing process, including callus formation and angiogenesis, which is needed for further bone formation and turnover. Considering that biglycan-deficient bones are weaker than normal counterparts [1], it is likely that biglycan could improve bone tissue strength during these later steps. We look forward to continue studying the important role biglycan plays in bone and, more specifically, fracture healing.

This research was supported by the Intramural Research Program of the NIH, NIDCR.

[1] Xu T, Bianco P, Fisher LW, Longenecker G, Smith E, Goldstein S, Bonadio J, Boskey A, Heegaard AM, Sommer B, Satomura K, Dominguez P, Zhao C, Kulkarni AB, Robey PG, Young MF. Targeted disruption of the biglycan gene leads to an osteoporosis-like phenotype in mice. Nat. Gen. 20:78-82 (1998).

[2] Ameye L, Young MF. Mice deficient in small leucine-rich proteoglycans: novel in vivo models for osteoporosis, osteoarthritis, Ehlers-Danlos syndrome, muscular dystrophy, and corneal diseases. Glycobiol. 12(9):107R-116R (2002).

[3] Berendsen AD, Pinnow EL, Maeda A, Brown AC, McCartney-Francis N, Kram V, Owens RT, Robey PG, Holmbeck K, de Castro LF, Kilts TM, Young MF. Biglycan modulates angiogenesis and bone formation during fracture healing. Matrix Biol. 35:223-231 (2014).

[4] Burge R, Dawson-Hughes B, Solomon DH, Wong JB, King A, Tosteson A. Incidence and economic burden of osteoporosis-related fracture in the United States, 2005-2025. J Bone Miner. Res. 22(3):465-475 (2007).

[5] Chen XD, Fisher LW, Robey PG, Young MF. The small leucine-rich proteoglycan biglycan modulates BMP-4-induced osteoblast differentiation. FASEB J. 18:948-958 (2004).

[6] Miguez PA, Terajima M, Nagaoka H, Ferreira JA, Braswell K, Ko CC, Yamauchi M. Recombinant biglycan promotes bone morphogenic protein-induced osteogenesis. J Dent. Res. 93(4):406-411 (2014).

[7] Tsuji K, Bandyopadhyay A, Harfe BD, Cox K, Kakar S, Gerstenfeld L, Einhorn T, Tabin CJ, Rosen V. BMP2 activity, although dispensable for bone formation, is required for the initiation of fracture healing. Nat. Gen. 38(12):1424-1429 (2006).

[8] Schaefer L, Babelova A, Kiss E, Hausser HJ, Baliova M, Krzyzankova M, Marsche G, Young MF, Mihalik D, Gotte M, Malle E, Schaefer RM, Grone HJ. The matrix component biglycan is proinflammatory and signals through Toll-like receptors 4 and 2 in macrophages. J Clin. Invest. 115:2223-2233 (2005).

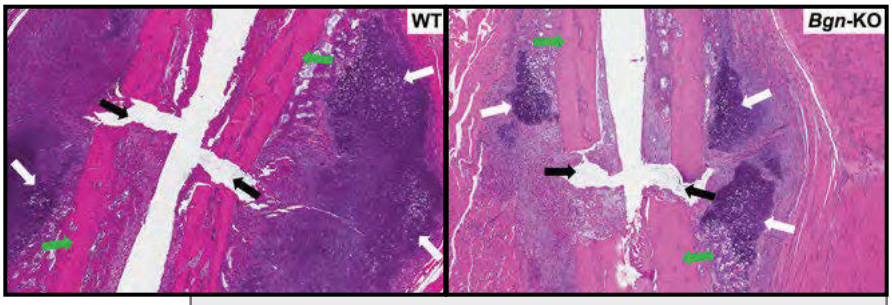

Figure 1. H&E staining of the healing callus 7 days post-fracture from a wild-type and Bgn-KO mouse, showing a smaller callus and less cartilage formation in the KO compared to the wild-type. Black arrows point to the fracture site, white arrows point to cartilage, and green arrows point to cortical bone of the femur. Image taken at 4X magnification.

The Editor's Page

Do Funding Shortfalls Impact Collaboration?

Research groups with common or converging interests have been collaborating for decades. In fields such as matrix biology, this can rapidly increase the pace of discovery while fostering an appreciation of our discipline among a larger population of scientists.

One question that we might consider then, as we approach the upcoming meeting in Cleveland, is whether the historical funding shortfalls we've experience in the US during recent years (1) have impacted our ability to collaborate with each other. There are probably several ways to consider this issue, but much of what you or I might gather from our colleagues, while true, is typically anecdotal.

From the perspective of the NIH, one could argue that collaborations by scientists are on the rise. In fact, for the first time since the Multi-PI grant funding mechanism was introduced, 2013 saw Multi-PI proposals enjoy a small but significant advantage over single PI-proposal in success rates in 2013 (2). I think that based on this data, one could reason that productive collaboration is indeed increasing.

However, one could also argue that the success of the multi-PI proposals does not really reflect the type of collaboration that fosters discovery. Given the rather challenging funding environment, the multi-PI proposal can become a collaboration of necessity. In an effort to provide any advantage possible, the dual PI award marries two specialists as PIs who might otherwise have simply aided one another on independent proposals. While the awards given to a Multi-PI proposal will not match two independent awards, it can frequently exceed the 250K/annum budget of a typical '10 module' R01 award. This can mean the difference between survival, downsizing or closing of a laboratory. Given that the overall success rate for single PI proposals (including revision) was only 13.1% (2), it is easy to see why uniting in an attempt to better 'weather the storm' might make sense.

It is also probably fair to argue that all collaborative ventures are not equal. Two related laboratories merging what might otherwise be two viable R01 applications into a single, more competitive application? This might not be what we typcially think about when we consider the classic model of cross disciplinary collaboration.

As each dollar become essential to maintain our core enterprise, riskier experiments are eliminated by necessity. The capacity to lend aid to other labs decreases. Discretionary funds become used for sustaining, rather than truly discretionary, purposes. Potential collaborators are similarly hobbled. Indeed, in rare cases, collaboration is limited purposefully - discouraged between competing institutions.

The cost of such a putative suppression of collaboration is unknown. Opportunities for new investigators have been limited, and anecdotally (at least) laboratories have closed. Yet, at the same time, discoveries continue to be made, in part due to the efficiency afforded by the technological boon, and by the establishment of databases that permit rapid focus on biologically significant molecules. One might even argue that a healthy population of reseach groups requires culling from time to time to keep the overall population fit.

I'm not sure I subscribe to this viewpoint. Most academic appointments are already well-vetted. We can appreciate a career where our colleagues are very capable individuals. Nonetheless, my own collaborative efforts are not where they once were. A quick survey of my colleagues in San Diego and beyond seems to support this notion. Perhaps it is time we addressed this.

Whether you are attending ASMB in Cleveland or another meeting this fall, its probably time to start talking to each other. Let's find creative ways to make true cross-discipline collaborations happen again, just as we anticipate a recovery form these funding challenges. As a society, ASMB will do best if poised to leverage funding via collaboration.

I don't know how long it will take us to recover, but I'm looking forward to the answer. After all - I'd really like to work with you.

/dgs

(1) http://nexus.od.nih.gov/all/2013/09/24/one-nation-in-support-of-biomedical-research/

(2) http://nexus.od.nih.gov/all/2014/07/11/how-do-multi-pi-applications-fare/

The Back Page

Positions

Cleveland Clinic

Director, Orthopaedic and Rheumatologic Research Center

The Departments of Biomedical Engineering, Rheumatology and Orthopaedic Surgery within the Lerner Research Institute and Orthopaedic and Rheumatologic Institute of the Cleveland Clinic are recruiting for a leadership level position as Director of the Orthopaedic and Rheumatologic Research Center (ORRC) in any area of musculoskeletal bioengineering, imaging, immunology, inflammation research.

The Cleveland Clinic is consistently rated as one of the top 5 hospitals in the country, and the Departments of Orthopaedic Surgery and Rheumatology are both ranked within the top 5 in their disciplines by the U.S. News and World Report. The Department of Biomedical Engineering is the largest of eleven highly interactive departments in the Lerner Research Institute, and encourages in innovation and translation of its technologies into the clinical arena. The Director of the ORRC will have the exciting opportunity to facilitate and build upon the existing multidisciplinary research and teaching programs that exist within and across these vibrant departments.

We are seeking a full time research and leadership commitment from individuals holding an MD, DO and/or PhD degrees. Recruitment resources and salary will be commensurate with qualifications and scope of responsibilities. Academic title will be at the Associate or Full Professor level in the Cleveland Clinic Lerner College of Medicine, with joint appointment in the Lerner Research Institute and Orthopaedic and Rheumatologic Institute. The successful candidate will have a demonstrated track-record and active peer-reviewed federal funding as Principal Investigator. She/he will be expected to build a center of excellence, internationally recognized for its strong basic and translational research and academic reputation.

A substantial recruitment package is offered, comprising:

1. An endowed chair
2. Generous start-up funding
3. Executive level administrative support
4. Executive office and conference room located within Lerner Research Institute
5. Several additional independent faculty level positions for the Center

Interested candidates should apply online here and submit a letter of interest and CV to:

Edward F. Plow, Ph.D.
Search Committee for Director of ORRC
NB5/50 Cleveland Clinic, 9500 Euclid Ave
Cleveland, OH 44195
plowe@ccf.org

http://my.clevelandclinic.org/orthopaedics-rheumatology/default.aspx
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Cleveland Clinic is pleased to be an equal employment/affirmative action employer:
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Contributing Content

The content The Matrix Letter includes both ASMB news items but also research directed content that fosters the mission of the ASMB:

...to promote basic, translational, and clinical research on the extracellular matrix (ECM), cell-ECM interactions, and ECM-based therapies and devices, and to support the growth and professional development of the ECM research community...

From the perspective of this communication, connecting ASMB researchers with each other, based on their research focus or their approaches is the ultimate goal. The Matrix Letter currently publishes the following categories of lab-initiated

Matrix Mini-reviews

The Matrix Mini-review feature will be a focused summary the contribution of a particular lab in the context of the current state of knowledge in that field. Usually written by students, postdoctoral fellows or young faculty, the minireview runs about a single written page, with a single scientific illustration and a lab photo, and less than 10 references.

Matrix Essays

The purpose of a Matrix Essay is to promote a new or breaking hypothesis in the field of Matrix biology, with the expressed purpose of garnering supporting evidence and collaborators from the greater ASMB membership. Matrix essays are about one running page and may include a single illustration and up to 10 references.

Letters to the Editor

A letter to the editor should be short and succinct, and will focus on alerting the ASMB membership to recent advances or concerns in our, and related, fields. A letter to the editor is limited to 200 words and three references.

Matrix Images

These are submissions of particularly aesthetic or educational images that you are willing to share with the membership, along with a caption explaining the image.

We greatly welcome your contributions.

Reference Format

1) Lewis R, Ravindran S, Wirthlin L, Traeger G, Fernandes RJ, McAlinden A. Disruption of the developmentally-regulated Col2a1 alternative splicing switch in a transgenic knock-in mouse model. Matrix Biol. 2012;31:214-26.