

Researching the researcher: How resident ideas turn into award-winning studies

In March, the prestigious Everett C. Fox Award was conferred on six young researchers at the Residents and Fellows Research Symposium at the 2013 Annual Meeting in Miami Beach (see p. 3). Directions talked with Rachel Miest, MD, who gave one of the award-winning presentations, to discuss how a research question blossoms into vital research. Dr. Miest studied forensic science at the University of North Dakota before attending Mayo Medical School. After graduation in 2011, she began her dermatology residency at Mayo Clinic in Rochester, where she is currently in her second year.

How did you come to pursue research?

As a first-year medical student, I knew dermatology was at the top of my list for potential medical specialties. After expressing interest in pursuing research in dermatology, I was fortunate to be introduced to my research mentor, James Yiannias, MD, through one of my medical school advisors. Not having much exposure to dermatology, I was open to research in any area of the specialty. As it turns out, I really enjoy the field of

contact dermatitis and hope to incorporate it into my future practice.

Your presentation at the AAD Annual Meeting was Diagnosis and prevalence of lanolin allergy: A prospective study. What did you seek to discover?

Allergic contact dermatitis to lanolin has long been debated. Proponents of lanolin as a relevant allergen suspect that it may be underdiagnosed. Current evaluation of suspected allergic contact dermatitis to lanolin includes patch testing to lanolin alcohol (30% in petrolatum). Using this method, the prevalence of lanolin allergy is low (1.8%-2.5%). We sought to determine whether patch testing to a single lanolin derivative results in underdiagnosis compared with patch testing to 12 lanolin derivatives.

Interestingly, our results showed that lanolin reaction rates increased (from 1.05% to 6.29%) when multiple lanolin derivatives were tested. Importantly, the lanolin derivative Amerchol L101 (50% in petrolatum) was more likely to show positive lanolin reactions than either our expanded series of deriva-



Rachel Miest, MD

tives or the current standard, suggesting that the sensitivity of patch testing to lanolin could be improved by adding Amerchol L101 to the current standard for patients with suspected lanolin allergy.

Additionally, we noted differences in reaction rates related to the supplier and

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Boards on the Web

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The Boards' Fodder archive and exclusive Web content are just two exciting elements of the new, evolving content of Directions online. Check it out today at www.aad.org/DIR.

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age of the lanolin derivatives we tested to. These findings, coupled with the fact that many consumer products with lanolin contain a derivative other than lanolin alcohol, highlight the potential benefit of patch testing to the patient's own products to better identify lanolin allergy.

Can you walk us through the research process from beginning to end?

Once our research question had been established, several steps were required prior to starting our

study. We worked with a statistician to determine the number of patients needed to achieve statistical power, and gained Institutional Review Board approval for all components of our study. An important step was working with our institutional pharmacy to compound the lanolin derivatives in concentrations and vehicles that we identified in the literature. Given the prospective nature of our study, all patient providers needed to be educated on the aims and methods of our study. Each consenting patient had patch tests applied by our nurses, while reactions were interpreted by our physicians. Once patient accrual

was complete, we began data analysis and manuscript preparation. The entire process took approximately four years.

How could this research make a difference in the future of dermatology?

Based on our results, we are working to update the standard series at the Mayo Clinic to include Amerchol L101. We hope our results will lead others to look more closely at lanolin as a relevant allergen and motivate future studies that will ultimately lead to better diagnosis of lanolin allergy.

How important is collaboration and support in the process?

It's incredibly important. Collaboration is especially important with a prospective study design — our research coordinators, pharmacists, statisticians, patch test nurses, and physicians were all essential to complete the study.

Would you describe it as an exciting process or an arduous one?

It is exciting to start with a clinical challenge and discover a result that could potentially influence patient care. There are certainly difficulties along the way, but that's what makes it so rewarding in the end. Given the complexity of the process, I think stumbling blocks are inevitable. We were fortunate that we did not encounter major issues that we couldn't overcome.

What do you believe the symposium is/looking for when they assign awards among all the research presentations they see?

I don't want to speak for the symposium judges, but I believe they are looking to reward studies that have the greatest potential impact on the practice of dermatology and the outcome for patients.

How did your research presentation become part of the symposium?

I was lucky to be able to work with an interested, talented, and



The Resident and Fellows Symposium, which presents the latest laboratory-based and clinical-based research findings, was held on March 3 during the AAD's 71st Annual Meeting in Miami Beach. Three winners were selected from each category, based on their abstracts, and were presented with the prestigious Everett C. Fox Award.

PHOTO: Back row: Rachel Miest, MD; Wesley Wu, MD; Kaveh Nezafati, MD; Rajan Kulkarni, MD, PhD; and Romy Keijsers, MD. Front row: Session faculty members: Sarah T. Arron, MD, PhD; Edward W. Cowen, MD; Sancy A. Leachman, MD, PhD.

Laboratory-based research:

*1st Place: Kaveh Nezafati, MD
DC-HIL+ myeloid-derived suppressor cells (MDSC) are a new prognostic marker for melanoma and promising target for immunotherapy*

*2nd Place: Rajan Kulkarni, MD, PhD
BioSTEP - a novel method for portable field histology for the developing world*

*3rd Place: Romy Keijsers, MD
Relatively high Foxp3/CD4 ratios in the symptomless skin of psoriatic patients suggesting active immune controlling mechanisms at a distance from the psoriatic plaque*

Clinical-based research:

*1st Place: Jonathan Silverberg, MD
Climatic factors are associated with childhood eczema prevalence in US*

*2nd Place: Rachel Miest, MD
Diagnosis and prevalence of lanolin allergy: A prospective study*

*3rd Place: Wesley Wu, MD
Nonmelanoma skin cancer mortality in the United States at the turn of the 21st century*

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Need more Boards' Fodder? Visit the NEW Boards' Fodder archives at www.aad.org/BFarchives.

Direct Immunofluorescence Patterns

Coleman Ritchie, MD

Epidermal Intercellular Pattern

Disease	Target	Histopathology	DIF	Bx Site	Hints
Pemphigus Group					
Pemphigus Vulgaris	DSG 3 +/- 1	Suprabasal Acantholysis with "Tombstoning" of the basal layer	Crisp Deposition at ICS with IgG > C3 deposition	NPS	- DIF may be concentrated over lower epidermal level - IIF Monkey Esophagus
Pemphigus Foliaceus	DSG 1	Subcorneal or intragranular acantholysis with "cling ons"	Crisp Deposition at ICS with IgG > C3	NPS	- DIF may be concentrated over upper epidermal level - IIF Guinea Pig Lip or Esophagus
Paraneoplastic Pemphigus	DSG 3 DSG 1 BPAG1 Periplakin Envoplakin Desmoplakin Plectin	Suprabasal Acantholysis + Interface with basal vac. change and dyskeratotic keratinocytes	A. IgG +/- IgM > C3 at BMZ in smudged pattern >>> B. IgG > C3 at ICS	NPS	- Commonly associated neoplasms NHL > CLL > Castleman's - IIF Rat Bladder Epithelium
IgA Pemphigus	Desmocollin 1	Subcorneal Pustules or suprabasilar acantholysis with neutrophils	Crisp Deposition at ICS with IgA	NPS	- Only IgA Intercellular Pattern - Positive DIF differentiates from Subcorneal Pustular Dermatitis
Pemphigus Vegetans	DSG 3 +/- 1	Suprabasal Acantholysis	Crisp Deposition at ICS with IgG > C3 deposition	NPS	- Subtype of Pemphigus vulgaris
Pemphigus Erythematosus	DSG 1	Subcorneal Acantholysis	IgG > C3 at ICS + Granular IgG, IgM, C3 at BMZ	NPS	- Remember as a hybrid of P. Fol. + Lupus Eryth. DIF - ANA Positive

Basement Membrane Zone (BMZ) Deposition

Disease	Target	Histopathology	DIF	Bx Site	Hints
Pemphigoid Group					
Bullous Pemphigoid	NC16A domain of BPAG2 & BPAG1	Subepidermal blister with eosinophils	Thin, Continuous Linear Pattern along the BMZ with C3 > IgG	NPS	- Unable to differentiate BP and HG on DIF. - BP of Pregnancy=HG
Herpes Gestationis	NC16A domain of BPAG2 & BPAG1	Subepidermal blister with eosinophils	Thin, Continuous Linear Pattern along the BMZ with C3 > IgG	NPS	- See above under Bullous Pemphigoid
Cicatricial Pemphigoid	C-terminal of BPAG2 Laminin 5 Ocular subtype: beta-4-integrin	Subepidermal blister with eosinophils	Thin, Continuous Linear Pattern along the BMZ +/- appendageal structures with C3 (50%) > IgG (25%); IgA (20%); IgM	NPS	- Histology + DIF may involve appendageal structures - Possible Laminin 5 association with malignancy
Non -Pemphigoid					
Epidermolysis Bullosa Acquisita (EBA)	Collagen VII	Subepidermal Blister Multiple possible presentations including pauci inflammatory, neutrophilic, lymphocytic, etc.	Multiple Deposits at BMZ Broad, Homogeneous Linear Deposition at the BMZ With IgG > C3; IgA (2/3); IgM (1/2)	NPS	- EBA and BP may appear identically histologically and with DIF - Salt Split Skin shows primarily dermal deposits
Bullous Systemic Lupus Erythematosus (SLE)	Collagen VII	Subepidermal blister with neutrophils	Two Patterns: 1. Multiple linear deposits at BMZ similar to EBA (60% of cases) 2. Multiple granular deposits at BMZ	NPS	Responds well to treatment with dapsone
Linear IgA Disease	LAD1 Antigen (BPAG2; 97 kDa portion)	Subepidermal blister with neutrophils	Homogeneous Linear Deposition Pattern at BMZ w/ IgA >>> C3	NPS	

Basement Membrane Zone (BMZ) plus Blood Vessels Deposition

Disease	Target	Histopathology	DIF	Bx Site	Hints
Porphyria Cutanea Tarda	None	Pauci Inflammatory Subepidermal Blister with "Festooning"	BMZ + Superficial Dermal Blood Vessels with IgG/A/M; C3; fibrin	NPS	- Blood vessels with impressive broad/thick pattern on DIF - Uroporphyrinogen III decarboxylase defect
Pseudo Porphyria	None	Pauci Inflammatory Subepidermal Blister with "Festooning"	BMZ + Superficial Dermal Blood Vessels with IgG/A/M; C3; fibrin	NPS	- DIF Identical to PCT - Drugs: Naproxen , Lasix, Thiazides - Porphyrins are normal
Erythropoietic Protoporphyrria	None	Eosinophilic thickened deposits around vessels in upper/mid dermis	BMZ + Superficial Dermal Blood Vessels with IgG/A/M; C3; fibrin	NPS	- DIF Identical to PCT - Ferrochelatase defect



Coleman Ritchie, MD, is a PGY-3 resident in the Vanderbilt University dermatology residency program in Nashville, Tenn.

Direct Immunofluorescence Patterns (continued)

Coleman Ritchie, MD

Basement Membrane Zone (BMZ) plus Papillary Dermis Deposition

Disease	Target	Histopathology	DIF	Bx Site	Hints
Dermatitis Herpetiformis	Unknown	Subepidermal blister with neutrophils Dermal Papillae with neutrophils	BMZ + Papillary Dermis with Granular IgA > C3 present in tufts or linear pattern	NPS	- HLA DR3; HLA DQ2 - Tissue Transglutaminase is not proven as the initiating bullous target in DH

Other Forms of Deposition

Disease	Target	Histopathology	DIF	Bx Site	Hints
Lichen Planus Pemphigoides	Primarily BPAG2 (NC16A domain; MCW4 portion) BPAG1	Lichenoid papules show typical lichen planus histopathology Tense bullae show histology pattern suggestive of BP	Linear BMZ (Granular IgG and C3 along shaggy BMZ) + Cytoid Body Deposition (IgM; fibrinogen > IgA, IgG, C3)	NPS	Clinically, BP + LP Contrast to bullous lichen planus w/ blister development at site of LP due to inflammation

Key:

- NPS = Normal Perilesional Skin Biopsy
- DSG 3 = Desmoglein 3 (130 kDa); DSG 1 = Desmoglein 1 (160 kDa);
- BPAG1 = Bullous Pemphigoid Antigen 1 = Bullous Pemphigoid 230 (kDa)
- BPAG2 = Bullous Pemphigoid Antigen 2 = Bullous Pemphigoid 180 (kDa)
- Plakin family:
Desmosomes: Periplakin (190 kDa), Envoplakin (210 kDa), desmoplakin (250 kDa)
Hemidesmosomes: BPAG1 (230kDa), plectin (500 kDa)
- Laminin 5 = Laminin 332
- NHL = Non Hodgkin's Lymphoma; CLL = Chronic Lymphocytic Leukemia

References

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 2. Rapini R. Practical Dermatopathology. Mosby; 2005.
 3. Calonje E, Brenn T, Lazar A, McKee PH. McKee's Pathology of the Skin. 4th ed. Saunders; 2011.
- Special thanks to Dr. Jo-David Fine and Dr. Alan Boyd.

Apply for a resident scholarship to attend AADA Legislative Conference

Scholarships are available for residents interested in advocacy and health policy. The scholarships are designed to encourage residents' ongoing interest in advocacy for dermatology and its patients.

The AADA awards several scholarships to residents who commit to year-long involvement in AADA

grassroots advocacy, including the Legislative Conference, Sept. 8-10 in Washington D.C. Past award winners have stayed active by participating in grassroots email campaigns, meeting with their district Congressional offices, and actively participating in AADA advocacy-focused teleconferences. Following the Legislative

Conference, AADA staff will follow up with award winners to discuss a checklist of grassroots activities.

To apply for a resident scholarship, fill out an application form at www.aad.org/LegislativeConference and send it to Blake McDonald at BMcdonald@aad.org or fax to (202) 842-4355. 

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Razieh Soltani, MD, is a 2nd-year dermatology resident at University of Utah.

Race for the Case

By Razieh Soltani, MD



A 63-year-old Caucasian female presents with one-year history of asymptomatic red-brown firm papules and nodules on dorsal fingers and hands, bilateral helices, and under surface of the tongue, in conjunction with progressive joint pain and flexion contracture of several fingers. In physical exam, she is also noted to have a poikilodermatous rash

on upper back. Her past medical history is significant for hypertension, hypothyroidism, hypercholesterolemia, and osteoporosis. Review of systems is otherwise unremarkable.

- 1) What is the diagnosis?
- 2) What is the characteristic histologic finding?
- 3) What are the common systemic associations?

- 4) What is the typical finding around the nail apparatus?
- 5) What is the most effective treatment based on new literature?

Respond today with the correct diagnosis to Allison Evans, staff editor, at aevans@aad.org, and you will be part of our drawing for a Starbucks gift card and your photo in *Directions!* 

She raced — and she won!

Kathryn (Katy) Russell, MD, is a third-year dermatology resident at New York Medical College. She is excited to start a procedural dermatology fellowship in Florida this July. Her hobbies

include running, yoga, and traveling. Her favorite recent trip was to Kenya on a dermatology medical mission trip with the organizations "Passion to Heal" and "Free the Children." 



Kathryn Russell, MD

Answers to the last Race for the Case, Spring 2013



- 1) What is the causative mutation? (*filaggrin*)
- 2) What is the most common mode of inheritance? (*autosomal dominant*)
- 3) What are the most commonly associated cancers with the acquired form of this condition? (*lymphoma, myeloma, Kaposi sarcoma, leiomyosarcoma, and various carcinomas*)
- 4) What is the enzyme defect in the x-linked form of this type of skin disorder? (*steroid sulfatase*) 

Do you have a good Race for the Case photo feature? We are seeking new contributions. Contact Dean at dmonti@aad.org for submission details.

Your Residents/Fellows Committee



Current and exiting members of the RFC were photographed in Miami earlier this year.

Top row (from left): Bethanee Schlosser, MD, PhD; Brian Hinds, MD; Thomas Roher, MD; Veena Vanchinathan, MD; Jeremy Brauer, MD; Lindsay Wilson, MD; Karolyn Wanat, MD; Sara Samimi, MD. Bottom row (from left): Anna Yasmine Kirkorian, MD; Gopal Patel, MD; Brett Blake, MD; Kathryn Beleznav, MD; Jeannette Jakus, MD.

Stressbusters: How residents manage stress

It's the simple things

by Bertha Baum, DO

"When I look back on all these worries, I remember the story of the old man who said on his deathbed that he had had a lot of trouble in his life, most of which had never happened." — Winston Churchill

We spend most of our lives searching for true happiness while battling fears, doubts, regrets, and other stressors. It's only the moment that we let all of this go that we can allow ourselves to finally be happy.

I have to admit that the best stress reliever I have found in 30 years is definitely spending quality time with my 5- and 6-year-old kids. I'm often extremely tired after a long work day or very worried about the millions of things I need to accomplish, but the moment I see those two kids, my life really gets put into perspective.

Kids live their lives based on instinct. They are enthusiastic about life, eager to learn, and curious about everything. Brazilian author Paulo Coelho said that "A child can teach an adult three things: to be happy for no reason, to always be busy with something,

and to know how to demand with all his might that which he desires." One of the most incredible lessons my kids have taught me is the ability to enjoy the simple things in life without letting stress take over.

My kids have taught me to take time for myself because all other matters can wait (okay, not when I'm on call, but you get the idea). Stress has a way of causing you to lose focus on what truly matters in life; having a family has grounded me in a way I never imagined possible. Thanks to this new perspective, gained through the wisdom of the youngest members of my family, I have become a better physician and a more understanding and empathetic human being.

Why worry about tomorrow? You are here, now, in this moment. Enjoy the present and all that's around you. If you choose to stop worrying and focus on the present, you will realize that you have no worries.

Bertha Baum, DO, is a first-year dermatology resident at Larkin/NSUCOM. She completed under-



Spending time with her children allows Dr. Baum to focus on what really matters in life.

graduate work in neuroscience and chemistry at the University of Miami and then attended medical school at NSUCOM in Florida. She had two children while in medical school and then went on to complete an internship at Westchester Hospital and a one-year research fellowship in dermatology soon after. Dr. Baum will be graduating residency in 2015. DR

How do you relieve resident stress? Send us your own personal stressbuster with a photo and maybe you'll see yourself in Directions. Send to Allison at aevans@aad.org.

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dedicated team. We also had the necessary resources to complete each step of our project. These large studies wouldn't be possible without a group of people with a common goal, and I was fortunate to be part of a team capable of completing a research project worthy of inclusion in the symposium. To be considered for a presentation in the symposium, I was required to submit an abstract and a letter of recommendation from my residency program director. Based on what we were told at the symposium, I understand it is quite competitive.

Has this research been transformative in any way?

Doing research during my training has emphasized the importance of research for improving the standard of care for patients. Looking forward to the rest of my career, providing the latest evidence-based medicine for my patients will be a priority, and it is ongoing research that makes that possible.

So ... what's next?

I wish I knew! The decision to pursue dermatology was easy. But to decide on an area within the specialty has been more difficult. One of the wonderful things about dermatology is the breadth of the specialty — and

I'm still trying to figure out what will be the best fit for me. Regardless of my final decision, research will always be an important component of my professional career.

Can you reassure residents that you are able to have a personal life outside of intensive, long-term research work?

Yes! My husband and I, with our new miniature schnauzer, enjoy spending time with our family and friends. I'm always looking for new hobbies. My current endeavor is painting, but I also love concerts, musicals, running, reading, shopping, and traveling. DR

Message from the Chair



Brian R. Hinds, MD

Greetings from Louisville!

As the academic calendar year begins anew, we congratulate the outgoing class of 2013 as they embark on a bright future in dermatology. It is my sincere hope that every graduating resident will transition to practice as an AAD member and become an influential voice for young physicians in dermatology.

For incoming freshmen, welcome to the world of dermatology and to the Academy! In the spring issue of *Directions*, I presented the mission of the Residents and Fellows Committee (RFC) and detailed its structure. You can learn more about the RFC at www.aad.org/ResidentsAndFellows. The residents and fellows Web page is a comprehensive resource that should be bookmarked and referenced often, as it represents the central information hub for residents and fellows. Here is an outline of my top five recommendations for high-yield materials on the residents and fellows website:

- FREE access to publications such as the *JAAD*, *Directions in Residency*, *Young Physician Focus*, *Member to Member*, etc.
- FREE access to educational products that offer current literature review with *Dialogues in Dermatology* and *Derm Clips*.
- FREE access to practice management resources, including *Dermatology World* and *Derm Coding Consult* that address knowledge gaps in transitioning from residency to practice.
- Updated resident scholarships,

awards, and travel grants. Beyond those listed on the website, it is important to remember that other medical societies (ASDS, ASDP, SPD, MDS) provide grants and scholarships as well. Also, limited resident scholarships are available for the 2013 AADA Legislative Conference, Sept. 8-10 in Washington, D.C. See page 5 for more information.

- Boards preparation resources with archived materials such as Boards' Fodder, Boards Blitz, and numerous peer-recommended resources with online and textbook publications.

There also have been exciting new developments on the *Directions in Residency* Web page at www.aad.org/DIR, including an archive of every Boards' Fodder that's been published since it debuted over eleven years ago! For more information, see page 1.

Undoubtedly, it is an exciting time to be a dermatology resident. With health care changes on the horizon, one could argue that now is the most essential time for widespread participation in Academy efforts. We share a common goal in our steadfast devotion to the specialty, so please do your part to get involved. If you are interested in exploring options for contribution to this publication, the RFC, or another AAD committee, please email me at bhinds65@gmail.com. 

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P.O. Box 4014
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