1. Breakthrough global study shows shared genetic risk factors in psoriasis and 4 other inflammatory diseases


Summary
This manuscript investigated the genetics of ankylosing spondylitis, Crohn's disease, psoriasis, primary sclerosing cholangitis, and ulcerative colitis to determine pleiotropy and the association between these clinically related diseases. Pleiotropy occurs when one gene influences two or more seemingly unrelated phenotypic traits. Consequently, a mutation in a pleiotropic gene may have an effect on some or all traits simultaneously. An individual with a pleiotropic risk variant is more likely to acquire both diseases. The aims of this cross-phenotype study were to (1) identify subsets of the five phenotypes with shared genetic risk loci using a cross-phenotype meta-analysis approach; (2) identify additional susceptibility loci; (3) investigate comorbidity and pleiotropy among these phenotypes; and (4) improve the understanding of shared pathways and biological mechanisms common to subsets of the phenotypes studied. Using high-density genotype data from more than 86,000 individuals of European ancestry, they identified 244 independent multi-disease signals, including 27 new genome-wide significant susceptibility loci and 3 unreported shared-risk loci. From 13 countries across Europe and North America, they collected 6,577 psoriasis cases. The comorbidities among the five immune diseases were best explained by biological pleiotropy rather than heterogeneity (a subgroup of cases genetically identical to those with another disease, possibly owing to diagnostic misclassification, molecular subtypes, or excessive comorbidity). In other words, their modeling supported (1) the presence of shared pathophysiological pathways as the basis for clinical co-occurrence and (2) the hypothesis that patients with concomitant syndromes are genetically distinct from patients without concomitant syndromes. The inflammatory bowel disease (IBD) and psoriasis phenotype type subsets showed enrichment for acetylation of histone H3 at lysine 27.
A LETTER FROM THE PRESIDENT

A president’s farewell
Dear Colleagues,

In December, my three-year term as IPC president came to an end, and Professor Alexa Kimball will lead the organization for the next three years.

It has been an honour to serve as IPC president, and I am grateful to the board, councilors, and staff for the opportunity to lead for these productive years. Our successes have positioned IPC for further growth, thanks to the hard work, expertise, and commitment of our network of volunteers.

Our work over the last three years has increased recognition for IPC as a prominent resource in research, education, and treatment. A notable example is our partnership in the recently-launched Global Psoriasis Atlas. (See page 27.)

We have continued to expand worldwide and strengthen our commitment to research and education with initiatives, including:

• increasing IPC’s participation in congresses in Asia and Latin America;
• welcoming councilors from countries new to IPC: China, Kuwait, Iran, Egypt, Colombia, Mexico, and Chile;
• sponsoring 28 educational symposia, with 11 programmes in the past year alone;
• identifying the top 21 priorities in psoriasis research;
• publishing nine manuscripts over the last three years.

Looking to the future, I know the IPC will continue to make strides under the capable leadership of Professor Kimball and Professor Jonathan Barker, IPC’s new vice-president/president-elect. Both are highly respected global thought leaders, researchers and practitioners. I look forward to continue working with them as we advance our work and mission.

With best wishes,

Professor Chris Griffiths, MD
Immediate Past President, International Psoriasis Council

A new term begins
Dear Colleagues,

It is a special honor to begin my term as IPC president during an exciting time for our psoriasis community and for the council itself. Since 2006, when I joined IPC’s board of directors, the council has expanded from a hopeful concept into an influential voice in the global psoriasis community.

I am thrilled to lead IPC and build on the successes achieved under the leadership of my predecessor, Professor Chris Griffiths. Through his expertise, dedication and vision, he has led us on a path toward growth and increasing influence in the world of psoriasis.

As I begin my term, IPC board and staff are devising a new strategic plan in which IPC will incorporate an innovative healthcare approach in our programs. Known as P4 medicine, this movement to improve patient care and outcomes is based on advances in technology and genetics research. (See page 23.) We will continue our work to advance the scientific understanding of the disease, its comorbidities, its impact on patients’ lives, and access worldwide to therapies and clinical expertise.

Lastly, we will increase our efforts to reach underserved areas. This year, for example, IPC will sponsor education programs in Chongqing, China; Cairo, Egypt; and Pretoria, South Africa.

I am excited to work with dedicated colleagues on these and other initiatives as we realize our organization’s goal to be the premier voice in psoriasis research, education and patient care.

Sincerely,

Alexa Boer Kimball, MD, MPH
President, International Psoriasis Council
(H3K27ac) in CD3 primary cells and for H3K27ac in adipose tissue, respectively.

**COMMENTARY**
This study provides a breakthrough in genetics studies by looking at a large number of patients to understand the genetic associations and overlap with five common chronic inflammatory diseases. These genes were even linked to a core network of genes that are commonly chosen as targets for therapeutic drugs. The study identified 9 drug-target genes that overlapped with 36 genes from the core network. This discovery could potentially represent new and upcoming candidates for novel drug discovery in the treatment of ankylosing spondylitis, Crohn’s disease, psoriasis, primary sclerosing cholangitis and ulcerative colitis. Despite the recent explosion of new drug therapies for psoriasis, these genomic studies can further enhance the availability of safe and effective therapies for these patients and their associated comorbidities.

—Dr. Ron Vender
2. Medicare patients taking biologics to treat psoriasis have low adherence rates


Summary
Studies indicate that adherence to biologics is low among patients with psoriasis. Most adherence-to-biologics data are based on patients who have private insurance. There is lack of data for elderly and disabled patients who are covered by Medicare, a nationwide health insurance program provided by the federal government in the United States. This study by Doshi et al looked at a national sample of Medicare beneficiaries with psoriasis who started on the biologics infliximab, etanercept, adalimumab, or ustekinumab. Using Medicare data files, the investigators conducted a retrospective 3-year claims analysis, with 12-month follow-up after index prescription. Rates of and factors associated with biologic adherence, discontinuation, switching, and restarting were reported. However, reasons for nonadherence were not reported. More than 2,700 patients initiated adalimumab, etanercept, infliximab, and ustekinumab. During a 1-year follow-up, 38% were adherent and 46% discontinued treatment, with 8% switching to another biologic, and 9% later restarting biologic treatment. Patient-reported reasons for nonadherence or gaps in treatment are unavailable in claims data. Being female and being ineligible for low-income subsidies were associated with increased odds of decreased adherence. Compared with index users of ustekinumab, index users of all 3 remaining biologics had greater chances of switching. Comorbidities were also documented, with cardiovascular disease, dyslipidemia, and diabetes being the most common. Obesity was only reported in approximately 12% of patients studied. Psoriatic arthritis was reported in almost 30% of patients, consistent with accepted incidence. Overall, Medicare patients starting on a regimen of biologics to treat their psoriasis had low adherence and high discontinuation rates.

COMMENTARY
Several terms have been proposed to indicate biologic adherence, including biologic persistence and biologic survival. Because so many factors influence this status, it is difficult to pinpoint just one reason for low or high values. Several factors, including patient preference, safety, efficacy, coverage, comorbidities, medication supply, prescriber preference, convenience, or other external influences may have a direct or indirect influence on whether patients adhere to biologics. Optimization of treatment is generally preferred to switching in order to avoid a potential decrease in the number of options available if a change is warranted for medical, financial, or other reasons. Unfortunately, this study was also limited by the fact that it may only pertain to the Medicare system in the U.S. and not necessarily extrapolated to other government-provided health insurance plans. In addition, this study uses data from 2009 to 2012, four years out of date. However, it does provide interesting and important information regarding comorbidities in this specific population. The incidences for most well-known comorbidities associated with psoriasis for this large sample size of more than 2,700 patients are listed and could be used for comparative purposes for future studies. It was also shown that Medicare beneficiaries who have psoriasis are more likely to have more comorbidities overall, compared with the normal population of patients with psoriasis. However, with the exception of atherosclerotic disease, comorbidities were not significantly associated with adherence. – RV
3. Complete skin clearance is clinically meaningful to patients living with psoriasis, study shows


Summary

Patients and physicians certainly strive to achieve clear skin, but there is insufficient evidence illustrating the impact of total skin clearance from the patient perspective. This study by Strober et al looked at pooled data from nonplacebo arms of 3 phase-3 clinical trials studying brodalumab, a human anti-interleukin-17 receptor antibody that was approved in July by the federal Food and Drug administration for treating moderate to severe plaque psoriasis. The study compared outcomes for patients who achieved a Psoriasis Area and Severity Index (PASI) 100 response or a static Physician Global Assessment (sPGA)=0 (clear skin) response with patients who achieved a PASI 75-99 (but no full clearance) or sPGA=1 (almost clear). The results were based on Dermatology Life Quality Index (DLQI) and Psoriasis Symptom Inventory (PSI) scores. One study arm compared brodalumab with ustekinumab, a monoclonal antibody that blocks interleukins 12 and 23. A PSI score of 0 meant that the patient had 100% symptom-free days. The DLQI score of 0/1 was achieved in patients with a PASI 100 in 80% of subjects, compared with a DLQI score of 0/1 in only 55% of those subjects achieving a PASI 75-99. The PSI score of 0 was achieved in 45% of subjects who achieved a PASI 100 response and only 8% for those subjects who achieved a PASI 75-99 response. Similar results were seen for sPGA of 0 versus 1. These differences were statistically significant with a value of <0.001. Based on these results, the authors concluded that complete skin clearance as measured by PASI 100 or sPGA=0 provides a clinically meaningful and statistically significant improvement in health-related quality of life as measured by DLQI and absence of psoriasis symptoms as measured by PSI. The PSI score of 0 meant that the patient had 100% symptom-free days. Therefore a PASI 100 or sPGA of 0 is clinically relevant to the patient.

COMMENTARY The overall comfort and improvement in quality of life is one of the most important driving forces in helping patients living with psoriasis feel satisfied with their treatment and can now be achieved safely and effectively with the advent of biologics. However, the significance to these patients of achieving a PASI 100 or sPGA of 0 has not been truly known. This pooled analysis shows that the impact is significant. There has been much controversy, however, on the treat-to-target goal that should be expected from any treatment offered to patients with psoriasis. Although PASI 100 or an sPGA of 0 may be desired by both the physician and patient alike, this goal might not be achieved nor maintained with the biologics currently available for a majority of patients. Therefore, over-promising and under-delivering is not a desirable position to be placed in during the course of treatment. This study also showed that a PASI 90 to <100 or sPGA of 1 was still important at reducing the DLQI and PSI, albeit not as significant as a PASI 100 or sPGA of 0. It is also a limitation that this pooled analysis focused on results from one main biologic medication (except for the one study arm that compared brodalumab to ustekinumab) and only measured outcomes at week 12 (end of placebo period) and week 52. Overall, however, it shows that PASI 100 or sPGA of 0 is important to patients in order to improve their symptom-free days and quality of life.

–RV
4. Reducing skin inflammation in patients with psoriasis might slow the progression of coronary plaque


**Summary**

There is now robust evidence that psoriasis is associated with systemic inflammation and a significantly increased risk of cardiovascular disease. Little is known about the longitudinal impact of psoriasis on the progression of atherosclerotic disease. The results from epidemiology studies have prompted smaller functional studies to address this at a clinical level. In this study by Lerman et al, the authors hypothesized that an improvement in psoriasis severity could result in a decrease in coronary plaque burden as measured by coronary CT angiography (CCTA). For this study, 50 patients with psoriasis were consecutively recruited and had CCTA to measure total (TB) and non-calcified coronary plaque (NCB) burden at baseline and after one year of follow-up. Psoriasis severity was measured using the Psoriasis Area Severity Index (PASI). The patient cohort had a low Framingham Risk Score – a gender-specific assessment tool estimating heart attack risk in 10 years developed from Framingham Heart Study data – and mild to moderate psoriasis. In patients whose PASI improved (n=33; ΔPASI -27%; p<0.001), there were significant improvements in TB (p=0.003) and NCB (p<0.001) after correction for traditional cardiovascular risk factors and the use of statins, and systemic or biologic psoriasis treatments. The authors concluded that an improvement in psoriasis severity was associated with a reduction in coronary disease and suggested that suppression of skin inflammation may retard the progression of early, noncalcified plaque. A full manuscript detailing this study has been submitted for publication and is currently under review.

**COMMENTARY**

Numerous studies have shown a link between psoriasis and increased cardiovascular risk. The mechanisms underlying this observed increase in risk have not been defined but common inflammatory pathways important in both the pathophysiology of psoriasis and cardiovascular inflammation are likely to be involved. It has been suggested that the reduction of systemic inflammation in psoriasis could help reduce coronary artery inflammation but to date evidence of this is lacking. The authors of this study are to be commended for performing this small but important study to assess the effect of reducing psoriasis severity on associated inflammatory atherogenesis. There are several limitations of this study, however. This was a small number of patients with a very low mean baseline body surface area involvement (BSA), ie, 4% and 1.3% in the groups with and without improvement in PASI, respectively. Between baseline and one year, there was one more smoker in the “not improved” group while two patients had stopped smoking in the “improved” group. Could this have explained the decreased coronary plaque burden in this group? Almost half of the patients were treated with various systemic and biologic agents, but in such low numbers that it is not possible to tease out whether the improvement in coronary plaque burden was due to reduction in cutaneous inflammation alone versus a cardiac-specific effect of some of these drugs. Several studies have suggested that patients with mild to moderate disease have a lower risk of cardiometabolic conditions when compared to those with severe disease, so this study may underestimate the potential reduction of inflammatory atherosclerotic plaque burden in those with more severe disease. Nonetheless, this study provides an excellent framework for future larger studies in patients with moderate to severe psoriasis, examining the effect of individual drugs on inflammatory coronary artery burden. Until alternative evidence is available, patients with psoriasis should be considered to be at a higher risk of cardiovascular disease and managed accordingly.

–Dr. Caitríona Ryan
5. Majority of patients with psoriasis maintain high level of response to anti-IL-17 agent ixekizumab in phase 3 trials


Summary
In this article by Gordon et al, 60-week data from the UNCOVER-1, 2, and 3 trials of the ixekizumab phase 3 program, and 12-week data from UNCOVER-1, are reported (12-week data from UNCOVER-2 and 3 have previously been presented). Results from the placebo-controlled phase of UNCOVER-3 were consistent with those of UNCOVER-1 and 2. In the 2-weekly dosing group, 81.8% and 89.1% of patients achieved the co-primary endpoints of sPGA (static Physicians Global Assessment) score of 0/1 and PASI (Psoriasis Area Severity Index) 75 response, respectively, while 76.4% and 82.6% achieved these endpoints in the 4-weekly dosing group, and 3.2% and 3.9% in the in the placebo group (P<0.001).

At week 12 in UNCOVER-1 and 2, only patients who had an sPGA 0/1 response to ixekizumab continued into the long-term extension (LTE) period where they entered a randomized withdrawal period and were assigned to two dosing regimens of ixekizumab or placebo. If a patient achieved an sPGA 3 response at any stage between weeks 12 and 60, they were classified as a non-responder, regardless of their response at week 60. Despite these stringent criteria, 74% of patients receiving the currently approved maintenance dose of ixekizumab maintained an sPGA score of 0/1 compared with 7.0% of placebo-treated patients. In the UNCOVER-3 trial, all patients could enter the LTE period, where they received 80 mg of ixekizumab every 4 weeks until week 60, serving as a continuously treated cohort; 73% and 80% of patients who received continuous treatment of ixekizumab from week 0 to 60, achieved an sPGA 0/1 or PASI 75 response, respectively. Eleven patients reported inflammatory bowel disease (IBD) while receiving ixekizumab, with an additional 3 cases reported in patients receiving placebo during the randomized withdrawal period. The rate of cardiovascular events did not differ between ixekizumab and placebo-treated patients, but there were 22 (0.6%) cardiovascular events and two cardiovascular deaths throughout the 60 weeks. The rates of candida infection were significantly higher in ixekizumab-treated patients, the majority of which were mild.

COMMENTARY Over the past two decades, de-convolution of the complex molecular basis of psoriasis has driven pharmacologic development, and the identification of the central role of interleukin (IL)-17 in disease pathogenesis has led to the advent of anti-IL-17 agents. In this large phase-3 program, ixekizumab has proven to be a highly efficacious treatment, with the vast majority of patients maintaining a high level of response up to 60 weeks. With the increasing efficacy of new treatments such as ixekizumab, achievement of PASI 90 and PASI 100 responses are soon becoming the measures of optimal response in biologic studies. The future for our patients is bright, with an ever-growing number of highly effective psoriasis treatments. However, despite revolutionary advances in the treatment of psoriasis, our long-term experience of these agents is still limited, and robust evidence of long-term safety over many years is still an absolute necessity with newly developed drugs. In the case of anti-IL-17 agents, further study is needed to explain the association between IL-17 blockade and the onset/exacerbation of IBD. Furthermore, the frequency of IBD flares on IL-17 inhibitors in real-world practice needs to be examined carefully. There is conflicting evidence regarding the effect of IL-17 on cardiovascular inflammation. The use of carefully constructed registries would be very helpful to monitor the long-term safety of anti-IL-17, particularly with regard to rarer side effects such as cardiovascular events, malignancy, and serious infections, and to examine pregnancy outcomes.

–CR

Psoriasis topics, including emerging therapies and treatment updates, take center stage at annual international conference

By Stephen J. Lockwood, MD, MPH

Dr. Stephen Lockwood is a clinical research fellow in the Massachusetts General Hospital department of dermatology in Boston. He received his master’s in public health degree from the Oregon MPH program and his medical degree from McGill University in Montreal, Quebec, Canada. In 2015, he worked as a resident in the Department of Pathology at Brigham & Women’s Hospital. He is currently applying for a dermatology residency.

The pathogenesis, diagnosis and management of psoriasis, as well as emerging treatments for the disease, were topics of discussion at the 25th annual meeting of the European Academy of Dermatology and Venereology in Vienna, Austria, Sept. 28 through Oct. 2. The following is a summary of related topics discussed by psoriasis experts from around the world.

Treatment Update

Dr. Rolland Gyulai, University of Pécs, Hungary, discussed the evolution of psoriasis treatment over the past decades, as well as emerging treatment options for moderate to severe disease.

Psoriasis is a common, chronic, immune-mediated, inflammatory skin disorder that affects more than 125 million people worldwide. It is associated with cardiovascular and metabolic disease, and has a profound and detrimental impact on patients’ quality of life. Mild psoriasis can often be managed with low-cost topical agents. However, for approximately one-third of patients who have moderate to severe forms of psoriasis, topical treatments are neither effective nor practical. Fortunately, several treatment options now exist that result in excellent outcomes for patients with moderate to severe psoriasis.

- Methotrexate (MTX) has traditionally been the gold standard treatment for moderate to severe plaque psoriasis, with Psoriasis Area and Severity Index (PASI) 50 representing a “clinically meaningful” response. The RESTORE 1 study comparing efficacy and safety of methotrexate versus infliximab showed that infliximab was significantly more effective compared to MTX. Improvements in patient quality of life (QoL) scores were also increased in the infliximab-treated group.

Several treatment options now exist that result in excellent outcomes for patients with moderate to severe psoriasis.

- Combination fumaric acid esters (FAEs, combining dimethylfumarate [DMF] and salts of monoethyl fumarate [MEF]) – available on the European market as Fumaderm Initial and Fumaderm – are frequently prescribed systemic agents in Europe for patients with moderate to severe chronic plaque psoriasis. The 2016 BRIDGE trial, which assessed the efficacy and safety of a new DMF formulation, LAS41008, showed it to be noninferior to Fumaderm. In that study, 671 subjects were randomized to receive LAS41008, Fumaderm or placebo. Of that number, 37.5% who received LAS41008 achieved a PASI 75 response at week 16, versus 40.3% and 15.3% who received Fumaderm and placebo, respectively. At week 16, 33% of the LAS41008 group achieved a Physician Global Assessment (PGA) of “clear” or “almost clear,” compared to 37.4% of subjects receiving Fumaderm. Given the positive phase III trial results, the expected approval of LAS41008 will add a promising new oral treatment option for patients with moderate to severe psoriasis in Europe.

- Biologic therapies have revolutionized the treatment of severe psoriasis, raising the primary treatment benchmark from PASI 50 to PASI 75, PASI 90, and even PASI 100. Advances in the treatment of moderate to severe psoriasis began in the late 1990s with the approval of etanercept and infliximab. Since then, several other tumor necrosis factor (TNF) inhibitors have been approved. Currently-approved biologics for...
Psoriasis include TNF inhibitors (etanercept, adalimumab, infliximab) and, more recently, an IL-12/23 inhibitor (ustekinumab), and anti-IL-17A monoclonal antibodies (secukinumab and ixekizumab). Secukinumab has demonstrated promising results in clinical trials. Treatment with secukinumab has resulted in PASI 75 and PASI 90 response rates of 83% and 76% at 12 weeks, respectively.

- Ixekizumab has been shown to be superior to etanercept in the treatment of moderate to severe psoriasis in three phase 3 clinical trials. It achieved a PASI-75 response in nearly 90% of patients at 12 weeks.

- Tofacitinib, an oral janus kinase (JAK) inhibitor for the treatment of moderate to severe psoriasis, demonstrated both efficacy and safety in two phase 3 clinical trials.

- For many patients who discontinue the use of conventional systemic agents or biologics due to loss of effectiveness, safety concerns, intolerance to injections, or burden of laboratory monitoring, apremilast (an oral phosphodiesterase 4 [PDE4] inhibitor) offers a novel and modestly effective agent for the treatment of moderate to severe psoriasis, achieving PASI-75 response in 29-33% of patients at week 16.

Even with the availability of these new and highly effective treatments, cost remains an impediment for many patients. A National Psoriasis Foundation study concluded that inadequate insurance coverage was a top reason for the under-treatment of moderate to severe psoriasis.

Psoriasiform skin lesions develop in about 5% of IBD patients treated with anti-TNF agents. Histologically, these lesions are characterized by infiltrating Th1 lymphocytes, and the severity of the lesions is correlated with the density of the inflammatory infiltrate. Furthermore, 10% of IBD patients treated with anti-TNF agents experience paradoxical articular manifestations, which are usually mild. The anti-IL12/23 agent ustekinumab may be an effective and suitable alternative to anti-TNF therapy in patients with IBD who develop psoriasiform skin lesions.

Case reports have described the co-existence of autoimmune bullous diseases (AIBDs), particularly anti-laminin γ1 (p200) pemphigoid, with psoriasis. A case-matched analysis of 62 patients with bullous pemphigoid (BP) and 62 control subjects with leg ulcers found that subjects with BP have a significantly higher co-existence of psoriasis than control subjects. The etiology for the co-existence, however, is not clearly established.

A National Psoriasis Foundation study concluded that inadequate insurance coverage was a top reason for the under-treatment of moderate to severe psoriasis.

Pemphigus vulgaris (PV) has also been described in a patient with psoriasis treated with etanercept. Other rare skin complications, including hidradenitis suppurativa, as well as neutrophilic dermatoses such as amicrobial pustulosis, have been associated with adalimumab and infliximab treatment for IBD. In some cases, complete improvement was seen when the biologic was discontinued or switched to another class. Re-introduction of the same biologic (or class of biologic) could result in disease relapse.

Clinical manifestations and pitfalls

This session, led by IPC Councilor Professor Lluís Puig, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain, addressed the paradoxical development of psoriasiform rashes in patients treated with anti-TNF therapy. Psoriasis, pustular psoriasis, and psoriasiform rashes are well known side effects of anti-TNF therapy for patients with ankylosing spondylitis, rheumatoid arthritis, and inflammatory bowel disease (IBD). The advent of biosimilars – drugs that are highly similar to already-approved biologics – may offer promise for patients who cannot afford biologics.

Treatment decisions and paradoxic reactions

IPC Councilor Dr. Michel Gilliet, University Hospital of Lausanne, Switzerland, led this discussion about the increasingly recognized role that epidermal cells and the innate immune system play in psoriasis development.
Blocking dendritic-cell-derived IFN-α potentially represents a novel approach to the treatment and prevention of psoriatic plaques.

T helper (Th) cells play a central role in the pathogenesis of psoriasis.27,28 Th cells produce IL-17, IL-22, and TNF-α. There is emerging evidence that psoriasis might originate from epidermal epithelial cells and innate immune cells.29 Plasmacytoid dendritic cells (PDCs) accumulate in the skin of psoriasis patients and become activated to produce IFN-α early on in disease development. Through the production of IFN-α, PDCs drive the activation and accumulation of autoimmune T cells in pre-psoriatic skin, ultimately leading to the formation of cutaneous psoriatic plaques. Xenograph models have demonstrated that blocking IFN-α production or signaling may prevent the development of psoriasis. Other studies have shown that PDC-derived IFN-α is essential to the development of psoriasis in vivo.30 Targeting PDC-derived IFN-α represents a key immune system pathway, and is a potentially effective approach for prevention and early therapeutic intervention in patients with psoriasis.30

Vitamin D signaling can act as a natural inhibitory mechanism on PDCs.31 A study of patients with psoriasis treated with heliotherapy (using solar rays) showed a significant reduction in the number of lesional plasmacytoid dendritic cells and macrophages, preceding clinical effect. These findings support the concept that PDCs are involved in the pathogenesis of psoriasis and that sun-induced clinical benefit is at least partly explained by its effect on the reduction of dermal dendritic cells.32 Clinical improvement of psoriasis treated with narrowband ultraviolet light B is associated with suppression of TH17 and type 1 and 2 IFN signaling pathways, which are critical in the disease pathogenesis.33

Various approaches to inhibiting the IFN-α pathway include cyclosporine (used in erythrodermic psoriasis), phototherapy (ultraviolet light depletes the PDCs in skin), and topical steroids and vitamin D analogs (inhibit PDC function).34

IL-1b is elevated in pustular psoriasis, in comparison to acute paradoxical psoriasis or chronic plaque psoriasis. Pustular psoriasis does not respond to anti-TNF therapy. However, there has been response to the IL-1 receptor antagonist, Anakinra, in several case reports.35,36

**Metabolic disorders and psoriasis**

In this session, IPC Councilor Dr. Brian Kirby, St. Vincent’s University Hospital, Dublin, Ireland, discussed the association between psoriasis and the metabolic syndrome (obesity, dyslipidemia, hypertension, and hyperglycemia). Obesity is a well-known risk factor for many diseases, including diabetes, cardiovascular disease, infections, non-alcoholic fatty liver disease, stroke, and cancer.37,38 Metabolic syndrome is significantly more common in psoriasis patients (odds ratio of 2.26) vs. controls. Studies have demonstrated that patients with psoriasis who are obese have a greater extent and more refractory disease.39,40 Pediatric patients with psoriasis also have been found to have higher blood pressure, greater body mass index (BMI), and increased waist circumference compared to pediatric subjects without psoriasis.41

The “psoriatic march” is a proposed mechanism for how psoriasis contributes to increased cardiovascular events: Systemic inflammation associated with psoriasis results in insulin resistance and endothelial dysfunction, producing atherosclerosis and eventually myocardial infarction or stroke.42 There is evidence that weight loss may improve psoriasis; some studies report almost near or complete remission of severe psoriasis following bariatric weight loss surgery.33,44 Randomized controlled trials and treatment cohorts have demonstrated reduced efficacy of biologics in obese patients.45 More than 300 overweight or obese patients with moderate to severe psoriasis who had not achieved disease clearance after 4 weeks of systemic therapy.
Diagnosis, management of psoriatic arthritis
In this session, Dr. Dennis McGonagle, University of Leeds, United Kingdom, discussed current screening tools to detect psoriatic arthritis, including the Psoriatic Arthritis Screening and Evaluation (PASE) questionnaire, Psoriatic Epidemiology Screening Tool (PEST), and Toronto Psoriatic Arthritis Screen (ToPAS). Each questionnaire performs well and fairly equivalently in terms of sensitivity (74-76%) and specificity (29-38%). However, substantial numbers of patients are also falsely positive for other forms of musculoskeletal disease. A questionnaire that combines the most discriminating features from each of the three existing screening tools could potentially help increase specificity for psoriatic arthritis.

Dr. McGonagle also discussed new biologic agents that might lead to even better control of psoriatic joint disease than current anti-TNF therapy.

Psoriatic arthritis tends to be oligoarticular and asymmetric, often with distal interphalangeal involvement and spondylitis. The probability of co-existing psoriatic arthritis is highest when the patient has scalp lesions (hazard ratio 3.89), nail dystrophy (HR 2.93), and intergluteal/perianal psoriatic lesions (HR 2.35).

Enthesitis and dactylitis are common findings in patients with psoriatic arthritis. Imaging studies of early synovitis indicate that the first abnormality to appear in swollen joints associated with psoriatic arthritis is enthesitis (inflammation at sites where ligaments, tendons, or joint capsules attach to bone). Prominent entheseal abnormalities (perienthesal fluid or edema) on MRI are a consistent feature of new onset synovitis in psoriatic arthritis, but only a minor feature in patients with rheumatoid arthritis.

Biologic agents, including anti-TNF therapies and the monoclonal antibodies to IL-17, have achieved encouraging results in both psoriatic skin and joint disease both clinically and radiologically.

Systemic therapies and combinations
This discussion led by IPC Immediate Past Board President Professor Peter van de Kerkhof, Radboud University Nijmegen Medical Centre, the Netherlands, addressed the potential benefit that combination treatment therapy offers patients with moderate to severe psoriasis. The rationale for combination treatments includes synergistic effects (T-cell functions, innate immunity, epidermal differentiation and proliferation), counteracting the side effects of drugs (carcinogenic effects, skin atrophy, irritation), and treating recalcitrant lesions. Potential benefits include a more rapid response and improvement in associated comorbidity (cardiovascular disease). Also, concomitant use of methotrexate may increase blood levels of biological agents, possibly reducing the likelihood for developing anti-drug antibodies.

In one multicenter, randomized controlled trial, 72 patients with active psoriatic arthritis and incomplete response to methotrexate were randomized to receive either cyclosporine or placebo along with methotrexate. Subjects receiving combination cyclosporine-methotrexate had significant improvement in swollen joint count and C-reactive protein (CRP) levels compared to baseline. Synovitis, detected by ultrasound, was reduced by 33% in the active group, compared to 6% in the placebo group. These findings suggest that combination therapy using cyclosporine and methotrexate in patients with active psoriatic arthritis and previous partial response to methotrexate may significantly improve psoriatic joint inflammation.

Studies have also assessed the efficacy of combining methotrexate and UVB light or psoralen combined with ultraviolet A (PUVA) therapy. One open-label study found...
that 93% of patients with plaque psoriasis treated with methotrexate plus PUVA experienced complete remission of their disease within 6 weeks. This combination, however, increased the risk for potential phototoxicity.

Many unanswered questions remain regarding the efficacy of combination therapy with synthetic, disease-modifying, anti-rheumatic drugs (DMARDs). Selection of systemic combination therapy depends on disease severity, disease phenotype, patient comorbidities, and any contraindications to a particular treatment approach.

**Critical evaluation of biologics**

The promise of biologics in treating psoriasis was the topic of this session led by Dr. Lajos Kemény, University of Szeged, Hungary. However, these agents also carry risks of infectious complications, and clinical vigilance is recommended.

Anti-TNF agents have been used to treat psoriasis since the late 1990s. In 2009, the agent ustekinumab emerged, targeting the IL-12/23 pathway. Most recently, secukinumab and ixekizumab, which target IL-17, appeared, expanding effective treatment options for moderate to severe disease. Many more biologic agents are in the development pipeline, including agents that target IL-23p19 and IL-17 receptors and biosimilars of anti-TNF agents.

It is important to remember that biologic agents carry an increased risk of serious infection complications, including pneumonia, cellulitis, and reactivation of latent TB. Infliximab and adalimumab were both associated with increased risk of serious infection (relative risk 2.49 and 1.97, respectively), compared to methotrexate and non-methotrexate systemic therapies. No increased risk of infectious complications compared to systemic non-biologic agents was found in patients treated with ustekinumab or etanercept. Increasing age, diabetes mellitus, smoking, and a history of previous serious infections were major risk factors for developing an infection during treatment. Patients treated with the newer IL-17 inhibitors secukinumab and ixekizumab have shown an increased risk for candida infections, which are usually mild, easy to treat, and do not require discontinuing the biologic.

Emerging therapies in psoriasis treatment have raised the bar from a goal of PASI 75 to PASI 90 and even a PASI 100 response.

**Difficult-to-treat psoriasis**

Psoriasis can be difficult to treat, depending on the subtype (plaque, pustular, erythrodermic, drug-induced), location (scalp, nail folds, palmar-plantar areas), and associated comorbidities (cancer, cardiovascular disease, psychological impairment). Current treatment options for subtypes of psoriasis, including pustular and nail psoriasis, were discussed in a session led by IPC Councilor Dr. Carle Paul, Toulouse University, France.

The quality of literature about the treatment of pustular psoriasis is weak. Palmoplantar psoriasis (PPP), a form of localized pustular psoriasis, affects 6-17% of patients with psoriasis. Despite limited surface involvement, this subtype is phenotypically complex, highly visible, and debilitating. It significantly impairs quality of life. There is no standard treatment for PPP, and the limited therapeutic options available have not been extensively evaluated for efficacy. PPP responds poorly to topical therapy, and few clinical trials include patients with palmoplantar involvement.

First-line treatments for isolated skin lesions should be acitretin, cyclosporine, retinoids with PUVA, or methotrexate. Cyclosporine is more efficacious than methotrexate. Second-line treatments include ustekinumab, secukinumab, infliximab, or adalimumab, which can also be used in cases of joint disease. PPP lesions demonstrate strong staining for IL-17. One study evaluating the response to ustekinumab in 5 patients with severe and refractory PPP demonstrated complete resolution of disease in all patients by week 20. However,
randomized controlled trials comparing ustekinumab and other treatments are necessary before developing treatment algorithms.

Nail psoriasis is present in up to half of patients with psoriasis, negatively affecting a patient’s quality of life and ability to function. Currently, there is no standard treatment protocol, and the disease is refractory to topical and most traditional systemic therapies. Treatment options include methotrexate, cyclosporine, apremilast, etanercept, adalimumab, and infliximab. There is limited evidence for the efficacy of methotrexate, retinoids, and cyclosporine. More recent studies suggest that anti-TNF agents, such as infliximab, adalimumab, and etanercept, are effective for the treatment of nail psoriasis.

Managing uncomplicated psoriasis

Uncomplicated psoriasis, including limited and mild forms, was the topic of this discussion led by Dr. Peter Wolf, Medical University of Graz, Austria. In the context of treatment, uncomplicated psoriasis is disease without arthritis or any other condition that makes it refractory or dangerous to treat.

Approximately 80% of patients with psoriasis have mild-to-moderate disease (less than 5% body surface area [BSA] involvement). For them, topical agents provide a high efficacy-to-safety ratio. Topical treatment with corticosteroids is the gold standard treatment for patients with limited psoriatic disease (< 10% BSA involvement). The combination of topical corticosteroids and vitamin D analogues appears to be more effective, with fewer medication side effects, including skin atrophy, than either agent used alone. Monotherapy with topical agents for extensive disease or limited but recalcitrant disease is not recommended.

A national survey of 1,000 US dermatologists regarding preferences for first-line treatment of moderate to severe psoriasis in healthy adults of childbearing age revealed that ultraviolet light B (UVB) is the most commonly preferred first-line therapy, followed by etanercept, methotrexate, and adalimumab.

Managing complicated psoriasis

In this session, IPC Councilor Dr. Marc Bourcier, Faculty of Medicine, Sherbrooke University, Quebec, Canada, discussed managing complicated psoriasis using an approach that combines different oral medications or the simultaneous use of an oral medication along with phototherapy.

Complicated psoriasis encompasses difficult-to-treat areas (scalp, nails, palmo-plantar), refractory disease (patients who never responded to treatment or patients who lost clinical response over time) and unexpected adverse reactions to treatment.
Combination treatments may improve clinical response (additive or synergistically) and help reduce the risk of cumulative toxicity, as lower doses of each agent are required for treatment. Methotrexate is the preferred systemic medication to use concurrently with biologics. The combination is well tolerated and without safety signals beyond the profiles of methotrexate and biologic agents. There is reduced occurrence of adverse drug events with concomitant methotrexate therapy, particularly for adalimumab and infliximab. Starting methotrexate before or at the same time as a biologic is recommended for a combination therapy approach. Concomitant use of methotrexate with biologics also may reduce the development of anti-drug antibodies, and thus improve disease response rates.

Methotrexate is contraindicated during pregnancy and should be stopped at least 3 months in advance of trying to conceive.

For the pediatric population, methotrexate is considered the treatment of choice. It is usually well tolerated and it favorably impacts psoriasis in about 30% of patients. The medication has a slow onset of action and treatment should be continued for at least 24 weeks before deciding to discontinue due to treatment failure. Folic acid supplementation is recommended when prescribing methotrexate.

Editor's note: In November 2016, the US Food and Drug Administration approved the expanded use of etanercept (brand name Enbrel) for children ages 4-17 with chronic moderate to severe plaque psoriasis. It was approved for treating adults who have moderate to severe plaque psoriasis in 2004.

Treatment of the elderly with methotrexate can be challenging due to immunosenescence, comorbidities, and polypharmacy. There is also an increased risk of hepatotoxicity in this patient demographic because of a tendency for elevated triglycerides and obesity. Myelosuppression is rare.

Combining biologics with phototherapy likely results in greater reduction in psoriasis severity than either treatment modality alone. Concomitant use of acitretin and etanercept allows for lower dosing of the biologic and similar efficacy of treatment. Short-term cyclosporine added to a biologic has been shown to control disease flares.

Diagnosis, treatment of psoriatic arthritis
In this session, Dr. Michaela Koehm, Goethe-Universität Frankfurt am Main, Germany, discussed criteria, including the Classification Criteria for Psoriatic Arthritis (CASPAR), for differentiating rheumatic joint disease from psoriatic arthritis. She also highlighted the latest European League Against Rheumatism (EULAR) recommendations for the pharmacological treatment of psoriatic arthritis.

Psoriatic arthritis, an inflammatory articuloskeletal disease, occurs in 20-30% of patients with psoriasis. The exact pathogenesis remains unclear. However, early diagnosis and therapy improve long-term outcomes.

In general, certain demographic and clinical data can help aid in differentiating psoriatic arthritis from rheumatoid arthritis.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Psoriatic arthritis</th>
<th>Rheumatoid arthritis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender distribution M:F</td>
<td>1:1</td>
<td>1:3</td>
</tr>
<tr>
<td>Age at onset</td>
<td>36-40 years</td>
<td>30-50 years</td>
</tr>
<tr>
<td>Joint distribution</td>
<td>Asymmetric</td>
<td>Symmetric</td>
</tr>
<tr>
<td>Distal joint involvement</td>
<td>Common</td>
<td>Uncommon</td>
</tr>
<tr>
<td>Pattern of involvement</td>
<td>All joints of one digit</td>
<td>All joints of the same level</td>
</tr>
<tr>
<td>Spinal involvement</td>
<td>Common</td>
<td>Rare</td>
</tr>
<tr>
<td>Rheumatoid nodules</td>
<td>Never</td>
<td>Common</td>
</tr>
<tr>
<td>Nail lesions</td>
<td>Common</td>
<td>Uncommon</td>
</tr>
<tr>
<td>Psoriasis</td>
<td>Almost always</td>
<td>Uncommon</td>
</tr>
<tr>
<td>HLA association</td>
<td>HLA-B27, B17, C0602</td>
<td>HLA-DRB1*04</td>
</tr>
</tbody>
</table>

The Classification Criteria for Psoriatic Arthritis (CASPAR) criteria have a sensitivity of 91.4% and specificity of 98.7% for the diagnosis of psoriatic arthritis if a total of at least 3 points is accumulated for various clinical features.

The EULAR recommendations for the management of psoriatic arthritis were updated in 2015. A systematic review of the literature was performed to help provide clinicians with a current consensus on pharmacological treatment.
Psoriasis for psoriatic arthritis. Treatments cover the use of non-steroidal anti-inflammatory drugs (NSAIDs), as well as conventional and biologic disease-modifying anti-rheumatic drugs (DMARDs)."85

Psoriasis in infants
In this session, IPC Councilor Professor Diamant Thaçi, University of Luebeck, Germany, led a discussion on early recognition of pediatric psoriasis. About 1 in 3 adults report that they developed psoriasis during childhood, sometimes before 2 years of age.86-88 Recognizing psoriasis early on in the pediatric population is important in reducing the risk for long-term disease sequelae, including psychological, skin, and joint disorders.

Psoriatic diaper rash is the most common presentation of childhood psoriasis, followed by scalp, intertriginous, and facial involvement. Plaque psoriasis is the most common subtype overall.88 Environmental triggers should be investigated, especially recent infections. Usually, topical therapy with corticosteroids, emollients, and calcipotriol is effective, but phototherapy or systemic agents, such as methotrexate or cyclosporine, may be required for more severe and extensive disease.89

Guselkumab vs adalimumab
IPC Councilor Dr. Andrew Blauvelt, Oregon Medical Research Center, Portland, Oregon, United States, discussed the results of VOYAGE 1, the first of 3 phase-3 clinical trials to evaluate the efficacy of the IL-23 monoclonal antibody, guselkumab, in treating adult moderate to severe plaque psoriasis.

The VOYAGE 1 study evaluated two primary endpoints: Investigator’s Global Assessment (IGA) score of 0 (clearance) or 1 (minimal disease) and PASI 90 (near complete clearance). Trial data indicate that patients receiving guselkumab achieved significantly higher rates of minimal disease or complete clearance compared to patients receiving adalimumab or placebo.

At week 16, 85.1% of patients receiving guselkumab achieved IGA 0 or 1, compared with 65.9% and 6.9% of patients receiving adalimumab and placebo, respectively. Superior efficacy of guselkumab continued across all major study endpoints through week 48 of treatment. Patients on guselkumab also had a greater improvement in quality of life, as measured by the Dermatology Life Quality Index (DLQI).

By week 48 of the study, adverse events were similar in proportion between patients receiving guselkumab and adalimumab (73.9% and 74.5%, respectively). Serious infections occurred in two patients on guselkumab and three patients on adalimumab. One myocardial infarction was reported in each group, and two solid malignancies (breast and prostate) in patients receiving guselkumab.

Ongoing phase 3 trials studying guselkumab will help to further assess the long-term efficacy and safety of the drug. However, for now, targeting the IL-23 pathway appears to be very promising for the treatment of moderate to severe plaque psoriasis.

Recognizing psoriasis early on in the pediatric population is important in reducing the risk for long-term disease sequelae, including psychological, skin, and joint disorders.

Tildrakizumab phase 3 trial results
In this session, IPC Councilor Professor Kristian Reich, Georg-August-University Göttingen, Germany, discussed the results of two phase 3 clinical trials, reSURFACE 1 and reSURFACE 2, evaluating the efficacy of the IL-23p19 inhibitor tildrakizumab for treating adult moderate to severe psoriasis. The co-primary endpoints of the trials were the proportion of patients achieving a PASI 75 response at week 12 compared to placebo and the proportion of patients achieving a PGA 0 or 1, with at least 2 grade reductions from baseline at week 12 compared to placebo. The reSURFACE 2 trial included an anti-TNF, etanercept, comparator arm.

In the trials, 63% of patients receiving the investigational drug achieved a PASI 75 response by week 12 and 77% of patients achieved PASI 75 response at week 28. A Physician...
Global Assessment (PGA) score of 0 or 1 was achieved in 57% of patients at week 12 and 66% of patients at week 28. In the comparator arm of the study, a significantly higher proportion of patients receiving tildrakizumab achieved a PASI 90 or PASI 100 response compared to placebo or etanercept. Of patients receiving tildrakizumab, 37% reached a PASI 90 response at week 12 and 59% reached a PASI 90 response at week 28. Of patients receiving tildrakizumab, 13% achieved PASI 100 response at week 12 and 30% achieved PASI 100 response at week 28.

The rate of serious adverse events, including infections, malignancies, and cardiovascular events was similar across all randomized treatment groups (placebo, etanercept, and tildrakizumab) at approximately 1-3%.

The results of these two studies indicate that selective targeting of the cytokine IL-23 pathway has promise to control the inflammatory process of psoriasis while also limiting the detrimental effects of a more generalized immunosuppressive treatment approach.

**Safety, efficacy of secukinumab**

In this session, IPC Councilor Dr. Robert Bissonnette, Innovaderm Research, Montreal, Quebec, Canada, discussed ongoing results of the phase 3 SCULPTURE extension study to assess the long-term efficacy and safety of the IL-17A antibody, secukinumab, for the treatment of moderate to severe psoriasis. PASI 75 responders at week 12 were randomized to maintenance treatment with secukinumab or onto a treatment-as-needed schedule. Efficacy was measured as maintaining or achieving PASI 75, PASI 90, or PASI 100 response.

In patients receiving the maintenance treatment, 68.5% achieved a PASI 90 response at year 1 and efficacy was maintained (66.4%) by year 4. Of patients receiving secukinumab as needed, 43.8% achieved PASI 100 response at year 1. Response was maintained (43.5%) by year 4.

PASI 75 response was achieved by 88.5% of patients at year 4. Approximately 60% of patients with difficult-to-treat areas (palms and soles) achieved PGA scores of 0 or 1 while taking secukinumab, with trending improvement 1.5 years into treatment.

Recently published data in the *Journal of the American Academy of Dermatology* demonstrated that secukinumab is superior (76% vs 61%; p<0.0001) to ustekinumab at 52 weeks in patients with moderate to severe plaque psoriasis.\(^{30}\)

Studies indicate that selective targeting of the cytokine IL-23 pathway has promise to control the inflammatory process of psoriasis while also limiting the detrimental effects of a more generalized immunosuppressive treatment approach.

**Ixekizumab vs ustekinumab**

In this session, Professor Reich discussed a phase 3 trial comparing the efficacy of ixekizumab, an IgG4 monoclonal antibody against interleukin (IL)-17A, versus ustekinumab, a monoclonal antibody against IL-12/23, in the treatment of moderate to severe plaque psoriasis.

In a phase 3b, multicenter, randomized (1:1), double-blind, parallel-group study, patients were randomized to one of two treatment arms: ixekizumab (160 mg loading dose at week 0, followed by 80 mg every 2 weeks through week 12; n = 136) or ustekinumab (45 mg at weeks 0 and 4 if <100 kg or 90 mg at weeks 0 and 4 if >100 kg; n = 166). The primary endpoint of the study was the difference in the proportions of patients achieving a PASI 90 response after 12 weeks of treatment. Secondary endpoints included achieving a PASI 75 and PASI 100 response, static Physician’s Global Assessment (sPGA) of 0 or 1, Dermatology Life Quality Index (DLQI) of 0 or 1, Itch Numeric Rating Scale change from baseline, and change from baseline in skin pain as measured by a visual analog scale (VAS).

Results at week 12 demonstrated that 73.9% of subjects receiving ixekizumab achieved a PASI 90 response versus 41.8% of subjects receiving ustekinumab. Of subjects receiving ixekizumab, 90.9% and 37.1% achieved a PASI 75 and PASI 100 response, respectively. Of subjects receiving
ustekinumab, 69.1% and 14.5% achieved a PASI 75 and PASI 100 response. Ixekizumab was superior to ustekinumab (p<0.001) in achieving PASI 90 response rates at week 12 (primary endpoint). However, ixekizumab was not statistically superior to ustekinumab in achieving sPGA (0), DLQI (0,1), Itch NRS, or skin pain VAS.

No deaths occurred during the study period and no significant difference in adverse events was observed between the two treatment arms. A potential limitation to this study is that the primary comparison was assessed too early, as ustekinumab reaches peak efficacy after 24 weeks (Phoenix 1 and Phoenix 2).

Adalimumab and body weight
In his poster presentation, Dr. Ronald Prussick, George Washington University, Washington, D.C., United States, discussed the results of an open-label extension study involving more than 1,200 patients and designed to assess whether adalimumab affects metabolic risk factors associated with psoriasis. These risk factors include cardiovascular disease, metabolic syndrome, nonalcoholic fatty liver disease, depression, and psoriatic arthritis. The risk of obesity, hyperlipidemia, and depression tends to increase over time in patients with psoriasis.28

Up to now, the effects of adalimumab on metabolic factors have not been extensively studied. A post-hoc analysis from the MO3-658 open-label extension study involving more than 1,256 patients with moderate to severe plaque psoriasis was designed to examine the effects of adalimumab on two risk indicators, blood pressure and blood laboratory values. Results demonstrated stable maintenance of body weight, blood pressure, and mean serum glucose, cholesterol, and liver enzymes over a 72-week study period.

Scalp and flexural psoriasis
In this session, Dr. Rodica Olteanu, Spitalul Clinic Colentina, Bucarest, Romania, addressed the management of scalp and flexural psoriasis.

The scalp is the most commonly affected area of the body in patients with psoriasis, and studies show they have a higher risk for developing psoriatic arthritis.91 Various criteria exist, including the Psoriasis Scalp Severity Index (PSSI), to measure the erythema, induration, and extent of disease.

Figuring out the patient’s drug-delivery preference helps improve treatment adherence. Topical foam provides easy application, quick drying, and minimal residue after application, and greater absorption than solution. Patients tend to prefer applying foams versus gels or creams.

Topical steroids are first-line agents for treating scalp psoriasis.29 Combining topical corticosteroids with vitamin D analogs may provide additional benefit, beyond the effects of either agent used singly. Intraleisonal corticosteroid injections might offer benefit, as well, but the data on efficacy for scalp psoriasis is sparse. Phototherapy, systemic medications, and biologics are options for patients who cannot achieve a sufficient improvement of their disease using topicals alone.91,92

Flexural psoriasis, sometimes called inverse psoriasis, involves lesions located in the skin folds and genitals. Common sites of flexural psoriasis are the axillae, groin, inframammary, genital, and perianal regions. These areas are treated with low potency topical corticosteroids because of the risk for inducing atrophy in intertriginous areas. Topical calcineurin inhibitors do not induce skin atrophy and may also be used as first-line agents.93,94

Genital psoriasis is associated with significantly impaired quality of life and sexual functioning. Patients often experience itch, pain, burning, dyspareunia, and worsening of their lesions following intercourse. For psoriasis involving the genitals, it is important to diagnose and treat candida infections, which may be contributing to the development of psoriatic plaques.■

References


Two Dynamic Symposia at AAD’s 2017 Annual Meeting

Evolving Perspectives on Psoriasis & Atopic Dermatitis: Are They Two Diseases or One Spectrum?

Program Goals

- Dissecting the overlap and differences in the underlying basis for atopic dermatitis and psoriasis
- Reviewing new, more targeted therapies and determining if there is overlap in their use
- Recognizing the need to better sub-classify atopic dermatitis and psoriasis based on underlying immunophenotype
- Ultimately, assessing if atopic dermatitis and psoriasis are part of a spectrum or truly different disorders

Thursday, March 2, 2017
8:00 a.m. – 12:00 p.m.
AAD Annual Meeting | Orlando, Florida
Hyatt Regency Orlando, Ballroom EF

With side by side presentations made on both psoriasis and atopic dermatitis, this symposium will explore both diseases in terms of epidemiology/natural history; genetics; immune pathways; comorbidities; therapy and pediatrics.

Co-Chairs
Amy Paller | Chicago, IL, USA
Emma Guttmann-Yassky | New York, NY, USA
Alexa Kimball | Boston, MA, USA

For more information and to RSVP, please visit: www.psoriasiscouncil.org/ipc_iec_AAD

This symposium is supported in part by Celgene, LEO Pharma, & Sanofi Genzyme and Regeneron Pharmaceuticals.

CMEs will not be awarded for this activity.

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Individualizing Treatment in Psoriasis: Empowering You and Your Patients to Make Well-Educated Decisions as a Team

Thursday, March 2, 2017
4:00 p.m. – 6:00 p.m.
AAD Annual Meeting | Orlando, Florida
Orange County Convention Center, Room 304GH

This interactive CME program will explore approaches to complex patient cases involving comorbidities, lifestyle management, and communicating with patients. Faculty will review the most current and compelling data relevant to each patient case and reinforce the value of tools and techniques utilized in patient and physician dialogue.

Course Director: Alan Menter | Dallas, TX, USA
Participating Faculty: Christine Bundy | Manchester, UK
        April Armstrong | Los Angeles, CA, USA

To learn more about this program and to pre-register, visit www.psoriasiscouncil.org/aad2017

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the A. Webb Roberts Center for Continuing Medical Education of Baylor Scott & White Health and the International Psoriasis Council. The A. Webb Roberts Center for Continuing Medical Education of Baylor Scott & White Health is accredited by the ACCME to provide continuing medical education for physicians.

The A. Webb Roberts Center for Continuing Medical Education of Baylor Scott & White Health designates this activity for a maximum of 2.0 AMA PRA Category 1 Credit(s). Physicians should claim only the credit commensurate with the extent of their participation in the activity.
IPC & IEC present ‘Psoriasis & Atopic Dermatitis: Two Diseases or One Spectrum? ’

In October, the International Psoriasis Council and the International Eczema Council partnered to present a symposium during the European Academy of Dermatology and Venereology congress in Vienna that explored psoriasis and atopic dermatitis. The symposium featured an impressive international faculty to debate aspects of both of these dermatological conditions. In two separate sessions, the program focused on the epidemiology and natural history of these diseases, their immune pathways, treatment, and comorbidities. A faculty member discussed each disease according to the section’s theme. In her presentation at the end of the program, IPC Councilor Dr. Amy Paller brought the two topics together for a discussion of their pediatric diagnosis, phenotypes, and translation from adults.

Overall, the program explored current understanding of the epidemiological and clinical similarities between psoriasis and atopic dermatitis, while highlighting the need to better sub-classify them, based on underlying immunophenotype. With more than 400 attendees, the program proved to be a huge success.

A report about this symposium is under development and will be submitted to a scientific journal for publication later this year.

Serving as symposium co-chairs were IPC president Professor Chris Griffiths, Manchester, United Kingdom; Amy Paller, IEC president, Chicago, Illinois, United States; and Dr. Emma Guttman-Yassky, IEC president-elect, New York, United States.

This symposium is now available as a series of on-demand webcasts. Each topic and subsequent Q&A session can be viewed at www.psoriasiscouncil.org/ipc_iec

Psoriasis and Atopic Dermatitis: Two Diseases or One Spectrum?

On-Demand Webcasts NOW AVAILABLE!
www.psoriasiscouncil.org/ipc_iec

If you were unable to join us for this engaging and important symposium at EADV, now is your chance to take a look. Each presentation can be viewed as a stand-alone video or you can watch the program in its entirety.

- Epidemiology/Natural History
- Immune Pathways
- Treatment
- Comorbidities
- Pediatrics: Diagnosis, Phenotypes, and Translating from Adults

Educational grant supporters of this activity:
LEO Pharma | Genzyme, a Sanofi company | Regeneron Pharmaceuticals
FOCUS ON P4 MEDICINE: AN IPC SYMPOSIUM

IPC symposium explores opportunities, challenges of P4 medicine, a personalized approach to healthcare

Global psoriasis experts from academia and industry convened in Munich, Germany, in September for an international symposium organized by the IPC to explore P4 medicine, a cross-disciplinary, personalized approach to healthcare. P4 medicine (predictive, preventive, personalized, and participatory) aims to improve patient care and outcomes through better diagnoses and targeted therapies and by involving patients in managing their own health.

Traditionally, medicine has taken a reactive, “one-size-fits-all” approach, treating disease rather than preventing it. P4 medicine focuses on the individual patient, emphasizing prevention and wellness over disease. P4 medicine uses advances in technology and genetics research to predict and prevent disease, stratify patients into disease endotypes to personalize treatment, and provide patients with information and tools that will help them improve their health and make lifestyle changes.

IPC's symposium, which was part of the 46th annual meeting of the European Society for Dermatological Research (ESDR), focused on the opportunities and challenges of using the P4 approach to transform psoriasis care.

The discussion covered a wide range of topics, including:

- the use of Big Data (large consortium studies, genomic data sets, electronic health records) to reveal psoriasis disease trends and to predict treatment response and manifestation of co-morbidities;

- the need for sharing data, analysis code, and biobanking resources across multiple stakeholders to further progress in psoriasis research;

- the impact of early diagnosis, optimal treatment, and lifestyle changes as key measures for the prevention of psoriasis comorbidities (psoriatic arthritis, cardiovascular disease and metabolic syndrome);

- connecting appropriate data (complex gene expression profiles and complex analyses) for targeted drug development and drug repositioning within the industry.

Also discussed were rheumatoid arthritis and systemic lupus erythematosus studies that demonstrated the value of the P4 medicine approach in optimizing care for patients with autoimmune and inflammatory diseases.

The IPC’s future research efforts and educational programs will incorporate the P4 approach with the launch of the new strategic plan for 2017-2022, said IPC Scientific Director Joelle van der Walt.

Serving as co-chairs for the P4 symposium were IPC Board President Professor Chris Griffiths, University of Manchester, United Kingdom, and Professor Catherine Smith, King’s College, London. Symposium topics were presented by Dr. Amy Foulkes and Professor Ian Bruce, University of Manchester; Dr. Brian Kirby, St Vincent’s Hospital, Dublin, Ireland; Professor Nick Reynolds, Newcastle upon Tyne Hospitals, United Kingdom; Professor Matthias Augustin, University of Hamburg, Germany; and Deepak Rajpal, GlaxoSmithKline, North Carolina, United States.
Big Data’s role in psoriasis care discussed at IPC 2016 Think Tank
“The Impact of Big Data on Psoriasis Treatment” was the focus of the IPC Think Tank, which took place in November in Barcelona, Spain. The IPC Think Tank is an annual, two-day event that brings together IPC board members, councilors, and corporate members to discuss the most pressing global issues related to the treatment and understanding of psoriasis. This session brought global thought leaders together to better define Big Data and to examine ways to make use of large and complex psoriasis patient data sets. Chaired by IPC President Professor Chris Griffiths, University of Manchester, and Professor Jonathan Barker, King’s College, London, the symposium offered a view of the future and the role of Big Data in improving care for patients living with psoriasis.

Psoriasis and mental health a hot discussion topic
After the Think Tank meeting, IPC councilors Elise Kleyn, United Kingdom, and Lluís Puig, Spain, led a Hot Topics roundtable discussion on “Psoriasis and Mental Health.” The meeting featured a series of speakers with expertise on the relationship between psoriasis and psychosocial issues. Speakers presented current findings on a number of topics: the prevalence of depression, alexithymia, suicidality in patients with psoriasis, the role of neuroinflammation in psoriasis pathology, the impact of depression on cardiovascular outcomes, and the commonalities and differences of the physiological impact between hidradenitis suppurativa and psoriasis. Also discussed were the importance of sleep on well-being and the management of psychosocial issues for psoriasis patients. Manuscripts for each program are currently in development.

IPC LEADERSHIP
In January, the IPC Board of Directors welcomed two new officers and two new board members. Professor Alexa Boer Kimball is the board’s new president, replacing Professor Chris Griffiths, whose 3-year term ended in December. Professor Jonathan Barker is the new board vice president and president-elect. Joining the board are Dr. Lars Iversen and Dra. Claudia de la Cruz.

Professor Kimball, an IPC board member since 2006, is president and chief executive officer of Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center and a dermatology professor at Harvard Medical School. Her areas of research include psoriasis and hidradenitis suppurativa. Professor Kimball has published more than 275 papers, and is the author of “100 Questions and Answers about Psoriasis,” which has been translated into Spanish, Greek, and Korean. She has received awards for her research on physician workforce economics, quality of life, and outcomes. She has served on multiple nonprofit boards including the Society for Investigative Dermatology, the Massachusetts Foundation for the Humanities and Public Policy, and the Hidradenitis Suppurativa Foundation.

Professor Barker, an IPC board member since 2005, is professor of medical dermatology and department academic head at St John’s Institute of Dermatology, King’s College, London. He is co-director of the Skin Therapy Research Unit and the Psoriasis Service at the Institute. His research interests include genetic discovery and clinical outcome.
measurement. A key investigator in the effort to map psoriasis susceptibility genes, Professor Barker heads the IPC’s exome consortium. He has published more than 200 peer-reviewed papers and authored and edited several books. His articles have appeared in scientific journals that include Nature Genetics, American Journal of Human Genetics, and the New England Journal of Medicine. He has chaired IPC’s scientific committee and is immediate past-president of the European Society for Dermatological Research.

**Dra. de la Cruz**, who joined the IPC as a councilor in 2014, is director of Clínica Dermacross, Santiago de Chile. An educator and practitioner with longtime expertise in psoriasis, she is former associate professor at the Universidad Católica, former director of the Chilean Society of Dermatology, founder and coordinator of the Chilean Psoriasis Group until this year, former chief of the psoriasis clinic at Universidad Católica in Santiago. She obtained her medical and dermatology degrees from the Universidad de Chile and completed her training at the university’s Jose Joaquin Aguirre hospital. Dra. de la Cruz was a member of the 2014 Reunión Anual de Dermatólogos Latinamericanos (annual meeting of Latin American Dermatologists) scientific committee. She serves as a co-chair of IPC’s Latin America Working Group.

**Professor Iversen**, an IPC councilor since 2009, is professor in dermatology at the University of Aarhus, Denmark, where he also teaches dermato-venereology. He received his clinical education and obtained a doctoral degree from the same university. Professor Iversen’s main research interests are psoriasis and cutaneous T-cell lymphoma. Most of his research activities are related to signal transduction and immunology. Professor Iversen has served as a guest researcher and has been a speaker at international conferences in Asia, Europe and the United States. He is the author or co-author of 155 articles and book chapters and the holder of one patent. He serves as a section editor for Acta Dermato-Venereologica and on the editorial board of Experimental Dermatology. His writings have appeared in several scientific journals including Nature Immunology, PNAS, the Journal of Immunology, and the Journal of Investigative Dermatology. Professor Iversen has chaired IPC’s Topical Therapy Working Group since 2013.

**Results of our reader survey**

Readers of the IPC Psoriasis Review are satisfied with the twice-yearly newsletter and say that the information it provides about current psoriasis treatments is useful to their professions. Moreover, they are likely to keep copies of the newsletter as reference guides.

Those are the highlights of an online readership survey conducted by the IPC in May 2016. The IPC created the survey to find out how informative and useful the newsletter is to the healthcare professionals who treat patients living with psoriasis and receive the publication. Of 188 survey respondents, 82% were dermatologists. The remaining 18% included rheumatologists, general practitioners, industry representatives, students and residents, and others in health-related fields.

The newsletter’s regular features include reviews of and commentaries on recently-published psoriasis-related research papers, reports from international conferences, and “IPC News” updates about the organization, its councilors and programs. Its goal is to help healthcare professionals improve patient outcomes by providing them with up-to-date information about research, treatments, and patient care. The newsletter is published in English, Spanish, and Portuguese and is available both in print and online versions.

Here’s more of what readers had to say:

- Most respondents said that the newsletter’s regular “Top 5” feature – reviews of 5 recently published research papers that are chosen by IPC councilors – is extremely or very useful (43.02% and 46.93%, respectively).
- Reports about international conferences, such as annual meetings of the American Academy of Dermatology (AAD) and the European Academy of Dermatology and...
Venereology (EADV), were rated as extremely useful (36.31%), very useful (46.93%), or somewhat useful (13.97%).

• The “IPC News” section was rated as extremely useful (25.58%), very useful (55.23%) and somewhat useful (16.86%).

An overwhelming 90% of respondents said that scientific information presented in the newsletter (eg, reviews of research papers, drug development updates) is excellent and nearly all (96%) said they are likely to keep copies of the *IPC Psoriasis Review* as reference guides.

IPC CEO Christy Langan said the IPC staff and board of directors are studying the survey results to learn more about the newsletter’s readership, what readers think of the publication, what content they like, and what they’d like to see in future issues. She said respondents provided valuable feedback that will help IPC ensure that the *Psoriasis Review* is providing useful and meaningful content to readers and will continue to do so for years to come.

### PATIENT CARE

**Biosimilars Working Group**

A manuscript produced by members of this working group was published in the Sept. 17 issue of the *British Journal of Dermatology*, co-chairs Jashin J. Wu and Arnon D. Cohen have announced. The manuscript, “Biosimilars for Psoriasis: Clinical Studies to Determine Similarity,” by Blauvelt A, Puig L, Chimenti S, et al, discusses “how biosimilars are evaluated in a clinical setting, with emphasis on extrapolation of indication, interchangeability, and optimal clinical trial design,” the authors state in the article’s abstract. Group members have submitted another manuscript for publication titled “Uptake of Biosimilars for Psoriasis in Clinical Practice Worldwide.” It is currently under peer review.

**Topical Therapies Working Group**

The group is preparing two manuscripts for publication, according to co-chairs Lars Iversen, Charles Lynde, and Vermén Verallo-Rowell. The first manuscript “Topical treatment of psoriasis: questionnaire results on topical therapy accessibility and influence of body surface area on usage,” has been submitted for publication and is under peer review. The second manuscript focuses on topical corticosteroids guidelines in several countries and is currently under development.

**Systemic Therapies Working Group**

Members of this group, led by former IPC president Professor Peter van de Kerkhof, the Netherlands, are studying the initial results of a survey measuring the current criteria and treatment of moderate psoriasis. Based on feedback from the survey, a project team will develop a plan for further data collection. The results of the survey will inform the direction of the working group’s priorities. This group relaunched in 2016 to better understand and promote the use of systemics.

**Latin American Working Group**

In October, this working group, which formed in 2015, met in Buenos Aires, Argentina, as part of the Congreso Ibero-Latinoamericano de Dermatología (CILAD) to better understand the burden of psoriasis in Latin America. IPC Board Member Ricardo Romiti, São Paulo, Brazil, presented a recent prevalence study of 9,000 adults in Brazil and talked about the advantages of using a telephone survey to collect data. Fernando Valenzuela, IPC councilor from Santiago, Chile, presented data on psoriasis prevalence in schoolchildren in Santiago. Group members acknowledged that epidemiology studies are lacking in the region and noted that methods for data collection in each country may differ. It will be critical to include all cases of psoriasis, from mild to severe, in both cities and rural areas to accurately estimate the burden of the disease in Latin America. The group also discussed issues related to biosimilar drugs, including naming, labeling, traceability, safety monitoring, and switching. Finally, members discussed the recent launch of the Global Psoriasis Atlas (GPA) (see page 27) and opportunities for the group to contribute to the project. The working group’s next step will be to assess current databases that contain epidemiological data to contribute to the GPA.
IPC NEWS

RESEARCH

IPC and partner groups launch global data collection project

The ambitious Global Psoriasis Atlas project that will create a global psoriasis database is now underway. The IPC is one of three partner organizations – the others are the International Federation of Psoriasis Associations (IFPA) and the International League of Dermatological Societies (ILDS) – that launched this first-ever, comprehensive effort this past September during the 25th annual Congress of the European Academy of Dermatology and Venereology in Vienna.

The Global Psoriasis Atlas is the organizations’ response to a World Health Organization report, released in early 2016, which issued an urgent call to fill knowledge gaps on the global incidence and prevalence of this serious, non-communicable disease. The report found that the prevalence of psoriasis around the world ranges from 0.09% to 11.4%. Current psoriasis data are derived from a mere 20 countries. This limited sample particularly obscures the situation in low- and middle-income settings. Previous psoriasis studies also often lacked a standardized case definition or methodology.

Therefore, the first phase of the Global Psoriasis Atlas project will be to comprehensively review current psoriasis literature and gather data on psoriasis from as many countries as possible, according to a press released jointly by the partner organizations. A global psoriasis database will improve researchers’ understanding of psoriasis, facilitate disease control, and enable successful healthcare planning.

Once a database is established, the project’s second phase will create a rigorous methodology and establish criteria for future psoriasis-related epidemiological research.

“The Global Psoriasis Atlas project is about driving constant improvement in our understanding of psoriasis and encouraging long-term data collection,” says IPC President Professor Chris Griffiths. “I believe this to be a project of paramount importance as we seek to determine the natural history and burden of psoriasis across the globe.”


IPC recently-published manuscripts

- **Biosimilars in psoriasis: Clinical practice and regulatory perspectives in Latin America.** de la Cruz C, de Carvalho AV, Dorantes GL. *J Dermatol.* 2016 Jul 27. doi: 10.1111/1346-8138.13512. [Epub ahead of print] This paper – based on an October 2015 IPC-led conference of dermatology experts from Argentina, Brazil, Chile, Colombia and Mexico – reviews the definition, approval, marketing and future of biosimilars in each country. It outlines the challenges of and need for treatment and consistent regulatory guidelines for the region.

EDUCATION AND OUTREACH

IPC’s Meet the Experts programs

Birmingham, United Kingdom
How to increase patient adherence to medications and how to manage a patient’s poor response to multiple biologics were among the topics discussed at IPC’s Meet the Experts panel discussion held last July during the 96th annual meeting of the British Association of Dermatologists. Other topics discussed included managing serious infections in patients on biologics, and unexpected developments during psoriasis treatment. IPC board president Professor Chris Griffiths, University of Manchester, United Kingdom, served as program chair. Panelists were Drs. Richard Warren and Chris Bundy, University of Manchester; Professor Catherine Smith, King’s College, London; and Professor Nick Reynolds, Newcastle University, United Kingdom.

Newport Beach, California, United States
IPC Councilor Dr. Jashin J. Wu, Kaiser Permanente Medical Center, Los Angeles, California, chaired this Meet the Experts panel discussion held in August as part of the 68th annual meeting of the Pacific Dermatologic Association. Topics addressed included what to do when a biologic of 5 years stops working; a case study of a 30-year-old female patient with palmoplantar pustular psoriasis; the neurologic effects of biologics; and biologics for pediatric patients. Leading these discussions, respectively, were Jashin Wu; Dr. Kristina Callis Duffin, University of Utah, Salt Lake City; Dr. Paul Yamauchi, MD, David Geffen School of Medicine, University of California, Los Angeles; and Dr. Kelly Cordoro, University of California, San Francisco.

Buenos Aires, Argentina
In October, as part of the Congreso Ibero-Latinoamericano de Dermatología (CILAD), the IPC sponsored a Meet the Experts program discussing challenging psoriasis cases and treatment strategies. Topics included for this session were: long-term psoriasis; psoriasis associated with psoriatic arthritis, vitiligo, and livedo reticularis; alcoholism and biological treatments; tuberculosis and biologic therapy in 2016; and long-term treatment with infliximab. Panelists were Edgardo Chouela, Centro Chouela and Fernando Stengel, Buenos Aires Skin, Buenos Aires; Nancy Podoswa, Instituto Mexicano del Seguridad Social, Mexico City, Mexico; Claudia de la Cruz, Clínica DermaCross, Santiago, Chile; and Ricardo Romiti, University of São Paulo, Brazil. The program was chaired by Professor Chris Griffiths, Manchester, United Kingdom.

IPC NEWS

IPC heads to Asia, Africa in 2017
As part of IPC’s efforts to expand its worldwide reach, the council will sponsor educational programs in China, Egypt, and South Africa in 2017.
IPC NEWS

IPC will hold a Meet the Experts program during the 23rd National Annual Conference of the Chinese Society of Dermatology, May 10-14, in Chongqing. It will mark the first time IPC has participated in this annual conference. The program is being organized at the invitation of new councilor Xuejun Zhang, MD, PhD, who is helping to select topics and presenters for the session.

The University of Pretoria in South Africa will be the site of an IPC Meet the Experts program, which will take place during the annual meeting of the South African Dermatological Society, Aug. 24-27. IPC Founding President Dr. Alan Menter, a South Africa native, will moderate the program.

In Cairo, Egypt, IPC will conduct a Meet the Experts program during the international SharmDerma conference, Oct. 26-29. The meeting is being organized with the help of IPC Councilor Dr. Mahira El Sayed of Cairo.

NEWSMAKER

In October, IPC Councilor Dr. Amy Paller was awarded the National Psoriasis Foundation’s Excellence in Leadership and Volunteer Award for her longtime commitment to psoriasis research. She received the award during the foundation’s annual Commit to Cure Gala, which took place in Chicago, where Dr. Paller is chair of the dermatology department at Northwestern University’s Feinberg School of Medicine. Dr. Paller, who joined the IPC in 2010, is the Feinberg school’s Walter J. Hamlin Professor and Chair, and professor of pediatrics. Since 2008, she has led clinical trials studying the use of the biologic etanercept to treat pediatric psoriasis. Her years-long investigations came to fruition in November, when the US Food and Drug Administration approved the extended use of etanercept for children and adolescents ages 4-17. “We are thrilled about this decision, which means that it will be easier for children with moderate to severe psoriasis to be treated with a biologic rather than methotrexate or other conventional immunosuppressants,” Dr. Paller said. “This decision also paves the way for trials and approvals of other biologics currently approved for adults in the US and for some biologics that are approved for children in Europe.”

An author of more than 400 publications, she has been a pioneer in research discoveries relating to genetic skin disorders. Among other organizations, Dr. Paller has served on the boards of the American Academy of Dermatology and the American Dermatological Association, as co-chair of the Pediatric Dermatology Research Alliance, and as president of the Board of Directors of the Society for Pediatric Dermatology.

NEW IPC COUNCILORS

Anne Bowcock, PhD
London, United Kingdom
Dr. Bowcock is professor and chair in Cancer Genomics at Imperial College in London. She obtained her PhD from the University of Witwatersrand in South Africa and was a postdoctoral fellow at Stanford University working on human population genetics and the genetic basis of diseases such as cystic fibrosis and Wilson’s disease with Professor Luigi Cavalli-Sforza. She held faculty positions at the University of Texas Southwestern Medical Center at Dallas and Washington University School of Medicine in Saint Louis. She has studied the genetics of psoriasis and psoriatic arthritis for more than twenty years. Her recent achievements in this field have been in identifying a familiar form of psoriasis and psoriatic arthritis and functional consequences of the disease-causing mutations. She is also searching for common forms of psoriasis and additional rare and highly penetrant genetic changes that lead to psoriasis and psoriatic arthritis, their role in disease susceptibility, and ways of combatting their effects.

Curdin Conrad, MD, PD-MERI
Lausanne, Switzerland
Dr. Conrad is head of policlinic and the centre for psoriasis at Lausanne University Hospital. He participated at the prestigious Postgraduate Course of Experimental Medicine and Biology at the University of Zurich. After his dermatology training in Zurich and postdoctoral research at MD Anderson Cancer Center in Houston, Texas, he returned...
to Switzerland. Dr. Curdin has received several scientific awards for his basic and translational research on innate and adaptive immunity in inflammatory skin diseases, focusing on psoriasis. He has numerous publications in journals such as *Nature Medicine*, *Journal of Experimental Medicine*, *Journal of Allergy and Clinical Immunology*, and *Journal of Immunology*, and more than 2500 citations. He has been principal investigator for multiple preclinical and clinical trials in psoriasis and serves as external scientific expert for several international societies and foundations.

**Yukari Okubo, MD, PhD**
Tokyo, Japan
Dr. Okubo has been a dermatology professor at Tokyo Medical University since 2012. Before that, she served as an assistant professor at the university from 2010 to 2012. She obtained her doctor of medicine degree at Tokyo Medical University in 1984 and has a PhD from the university. Dr. Okubo’s career includes serving as a post-doctoral fellow at the Palo Alto Medical University in California, United States, and as a post-doctoral fellow at Stanford University Department of Dermatology in Palo Alto. Her specific dermatology interests are psoriasis, atopic dermatitis, and contact dermatitis. She also specializes in allergology. She is a member of several scientific societies, including the Japanese Dermatological Association, the Japanese Society for Investigative Dermatology and the Japanese Society for Psoriasis Research. Dr. Okubo has published 34 original manuscripts in English and 102 in Japanese, along with 374 abstracts.

**Xuejun Zhang, MD, PhD**
Hefei, Anhui province, China
Dr. Zhang is professor of dermatology and venereology at Anhui Medical University and director of the Key Lab of Dermatology for China’s Ministry of Education. He received his medical degree from Anhui Medical College, a master of science degree from Anhui Medical University, and his doctor of philosophy degree from Shanghai Medical University. His research interests are genetics and the genomics of skin diseases. Dr. Zhang is a co-organizer of the journal *Nature Genetics*’ Genome Wide Association Study workshops. He is an associate editor of the *Journal of Investigative Dermatology* and chief editor of the textbook “Dermatovenereology” in Chinese. Among other professional memberships, he is chairman of the Chinese Psoriasis Committee. Dr. Zhang has published more than 500 articles, including 285 papers in international academic journals. His articles appeared in the *New England Journal of Medicine* and *Nature Genetics*.
**MotherToBaby has information on pregnancy in psoriasis, psoriatic arthritis**

Healthcare providers treating patients who have psoriasis and/or psoriatic arthritis might be interested in information from the Organization of Teratology Information Specialists (OTIS), a nonprofit research group that conducts observational studies of the use of medications during pregnancy and breastfeeding.

An OTIS program called MotherToBaby conducts pregnancy studies and provides free, evidence-based information to health care professionals, mothers, and the general public. Among studies currently underway, the program is researching whether medications that are used to treat autoimmune diseases, including psoriasis and psoriatic arthritis, are safe to take during pregnancy. MotherToBaby is accepting referrals for several studies, including one called the Pregnancy and Psoriatic Diseases Study. For information or to refer a patient, visit mothertobaby.org.
RESOURCES
The International Psoriasis Council is pleased to bring you the following educational opportunities and resources to advance your knowledge of treating patients with psoriasis.

UPCOMING IPC EVENTS
March 2, 2017
IPC Symposium: Individualizing Treatment in Psoriasis: Empowering You and Your Patients to Make Well-Educated Decisions as a Team
75th Annual Meeting of the American Academy of Dermatology
Orlando, USA

IEC & IPC joint symposium: Evolving Perspectives on Psoriasis and Atopic Dermatitis: Are They Two Diseases or One Spectrum?
75th Annual Meeting of the American Academy of Dermatology
Orlando, USA

April 26-29, 2017
IPC Scientific Symposium
76th Annual Meeting of the Society for Investigative Dermatology
Portland, USA

May 10-14, 2017
IPC’s Meet the Experts
National Annual Conference of Chinese Society of Dermatology
Chongqing, China

May 27, 2017
IPC’s Meet the Experts
35th Reunión Anual de Dermatólogos Latinoamericanos (RADLA)
Bogotá, Colombia

August 24-27, 2017
IPC’s Meet the Experts
South African Dermatological Society Annual Meeting
Pretoria, South Africa

Sept 27-30, 2017
IPC Scientific Symposium
Annual European Society of Dermatological Research Meeting (ESDR)
Salzburg, Austria

Oct 26-29, 2017
IPC’s Meet the Experts
SharmDerma Congress
Cairo, Egypt

Nov 30 - Dec 2, 2017
Psoriasis: From Gene to Clinic International Congress
London, England

IPC’S ONLINE RESOURCES
International Eczema Council & IPC joint symposium: “Psoriasis and Atopic Dermatitis: Two Diseases or One Spectrum?”
On Demand Webcasts
Recorded in October at the EADV meeting in Austria, watch individual presentations on demand and see our world renowned experts present both sides of these two diseases.
http://www.psoriasiscouncil.org/ipc_iec

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The International Psoriasis Council (IPC) is a dermatology-led, voluntary, global nonprofit organization dedicated to innovation across the full spectrum of psoriasis through research, education and patient care. IPC’s vision is a world free of psoriasis. The mission of the IPC is to advance the care of people with psoriasis worldwide through education, research, and advocacy.