

ePoster: 18263

Presented at the American Academy of Dermatology • Denver, CO, USA • March 20–24, 2020

Association Between an Itch-Free State in Atopic Dermatitis Treated With Ruxolitinib Cream and Systemic Inflammatory Mediators

Sherry Owens,¹ Kang Sun,² Heather Jones,² Michael Kuligowski,² Michael D. Howell¹

¹Incyte Research Institute, Wilmington, DE; ²Incyte Corporation, Wilmington, DE

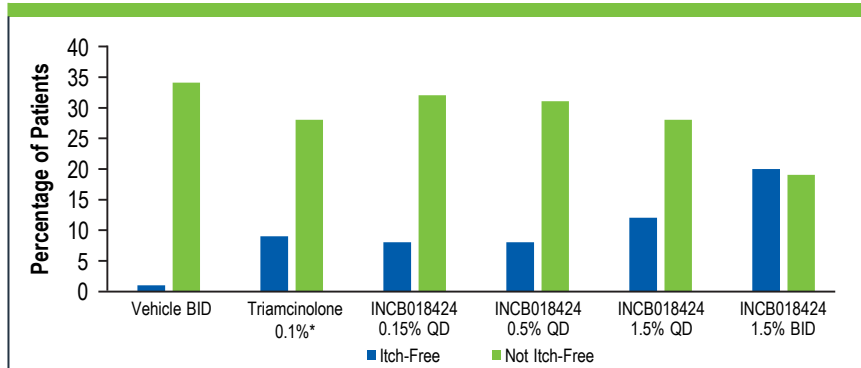
This study was sponsored by Incyte Corporation (Wilmington, DE).

All authors are employees of Incyte Corporation and own stock.

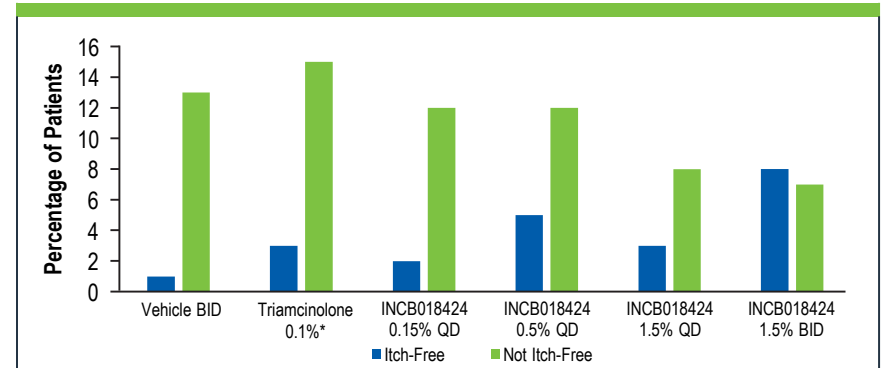
Background and Methods

- **Background:** Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by substantial pruritus. Ruxolitinib cream (selective Janus kinase [JAK1/2] inhibitor) previously demonstrated significant therapeutic benefit in a phase 2b trial (NCT03011892) of patients with AD amenable to topical treatment
- **Question of Interest:** What proteomic changes occur in patients with AD eligible for topical therapy achieving an itch-free state compared with those who do not?
- **Analysis:** Data and sera from 89 patients in the intent-to-treat population of NCT03011892 were analyzed. Patient-reported itch was assessed daily using a numeric rating scale (NRS; 0–10), and an itch-free state was defined as an NRS score of 0/1 at week 8. Fold change from baseline to week 8 of 1012 proteins was evaluated for each patient and comparisons were made between itch-free and non-itch-free participants using a 2-sample *t* test
 - *The highest proportion of itch-free patients (NRS 0/1) occurred with ruxolitinib cream 1.5% twice daily (BID)*

All Patients With Itch Data (n = 230)

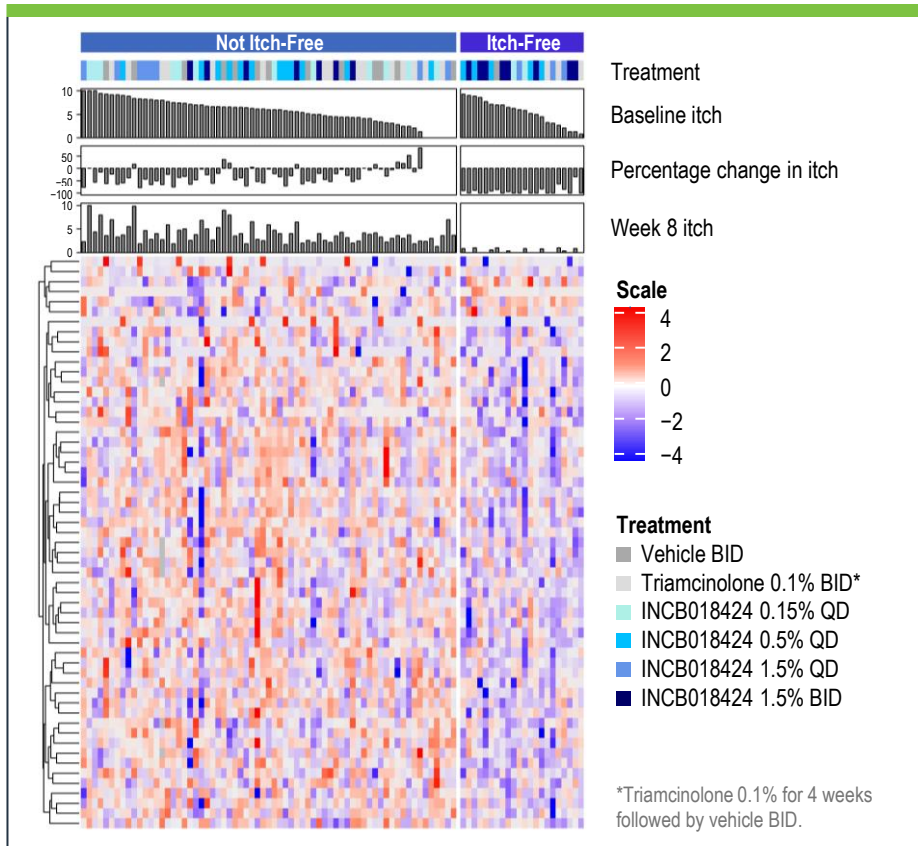


Patients With Both Itch Data and Proteomic Analysis (n = 89)



*Triamcinolone 0.1% for 4 weeks followed by vehicle BID. QD, once daily.

Reductions in Itch and Inflammation are Correlated

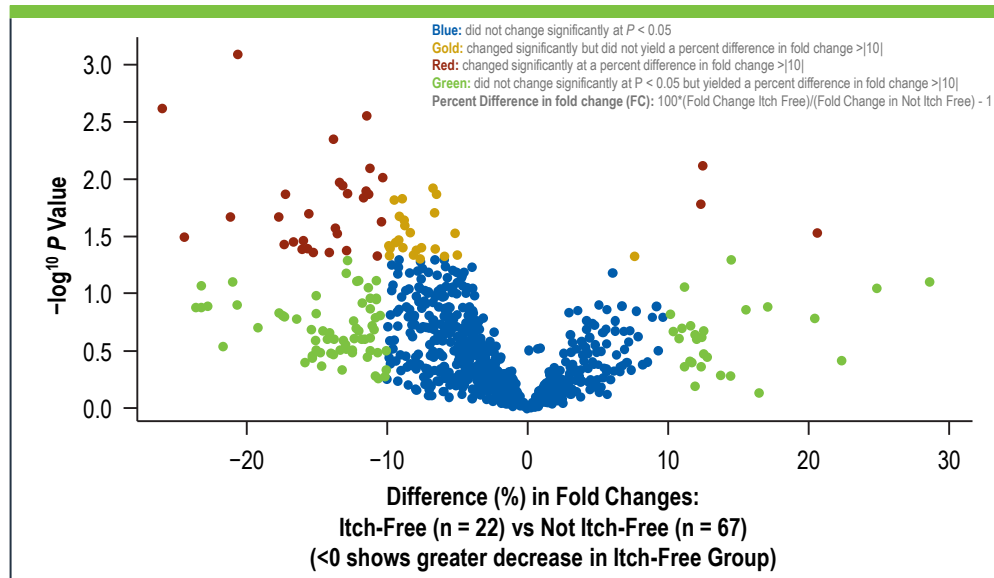


- Rows represent proteins; columns represent patients (not itch-free, n=67; itch-free, n=22)
- Baseline itch based on Itch NRS with a range of 0 to 10
- Patients considered to be itch-free reported week 8 itch scores of 0/1
- 53 proteins were more down-regulated in itch-free patients (n = 22) compared with those with NRS itch scores >1 at week 8 (n = 67), whereas 4 were more up-regulated
- Many patients did see reductions in itch score from baseline, but did not achieve an itch-free rating

Most Differentially Expressed Proteins Corresponding to Itch-Free State

- Patients achieving an itch-free state generally experienced greater decreases in inflammatory mediators compared with others
- Neurotrophin-4 was the only top protein listed to experience more up-regulation in itch-free patients

Most significantly differentially expressed proteins from baseline to week 8 in patients achieving an itch-free state (NRS 0/1) versus those who did not (NRS >1)



Proteins	Not Itch-Free Mean Fold Change (Week 8 NRS >1)	Itch-Free Mean Fold Change (Week 8 NRS 0/1)	P Value
ALDH3A1	0.82	1.11	0.002
CES2	0.78	1.03	0.031
TMPRSS15	0.83	1.05	0.021
NTF4	1.12	0.93	0.030
TYMP	0.74	0.93	<0.001
LEP	0.85	1.03	0.021
FOXO1	0.81	0.98	0.037
ALDH1A1	0.80	0.96	0.014
FADD	0.81	0.97	0.035
NPPC	0.84	1.00	0.041

Above shows the t test P values and difference in fold changes from baseline to week 8 in itch-free patients compared with others.

Conclusions and Future Work

Conclusions

- The greatest percentage of patients achieving itch-free state occurred in the 1.5% BID cohort, followed by the 1.5% QD cohort
- Patients achieving an itch-free state mostly experienced greater decreases in inflammatory mediators compared with others

Potential Avenues of Future Work

- Investigate whether inflammatory mediator changes occur immediately upon the relief of itch or following extended itch/scratch cycle cessation
- Investigate potential explanations for proteomic expression differences by itch-free state