

Session Two

SEBORRHEIC DERMATITIS ETIOLOGY & TREATMENT

Dr. James R. Schwartz

5:00 pm - 5:15 pm
Friday, March 23

Seborrheic dermatitis of the scalp (commonly referred to as dandruff) is a fairly common condition, but has several bothersome symptoms to the sufferer that lead to both physical and psychological impacts. The etiology of the condition involves commensal *Malassezia* yeasts interacting with sebaceous lipids to yield a pro-inflammatory species. The resultant inflammation leads to hyper-proliferation and the key symptoms of flakes and itch. Treatment of the condition requires several elements. Most effective products rely on an anti-fungal active to suppress the *Malassezia* population. Not all actives are equally effective and, more importantly, pharmacological delivery from complex shampoo matrices can limit their bio-activity in vivo. The key to long-term effective treatment requires prophylaxis, placing additional emphasis on the product matrix itself: cosmetic acceptability, affordability and convenient and effective usage regimen. Based on a detailed etiology and pharmacology understanding, extremely effective treatments are available for seborrheic dermatitis.

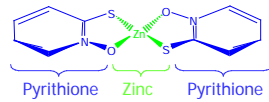
With the following poster insert:

Potentialiation of PTZ Shampoo Improves Dandruff/SD Efficacy

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Introduction: PTZ-Based Anti-Dandruff Shampoos

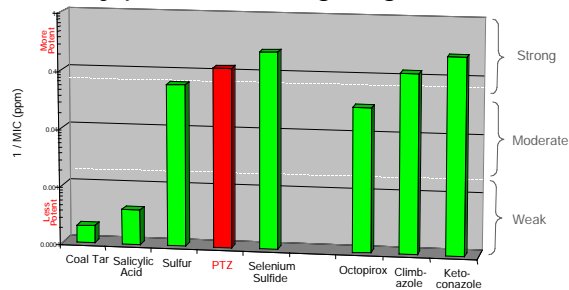
▶ What is Pyrithione Zinc (PTZ)?



• A coordination complex between **zinc** and **pyrithione** in a 1:2 ratio

• It is sparingly soluble in water and shampoo product

▶ PTZ is a very potent anti-fungal against *Malassezia*:



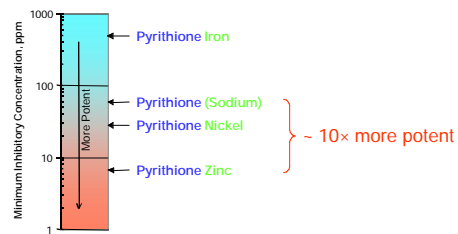
▶ Mechanism of PTZ anti-dandruff benefits:

• Primary mechanism is elimination of *Malassezia* causative agent

• Anti-irritancy activity also a source of benefit

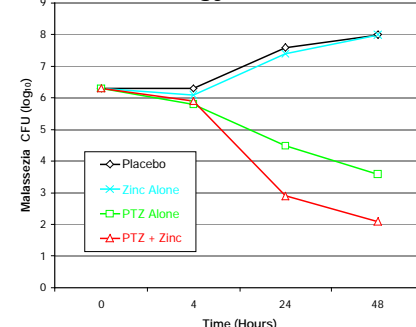
▶ Mechanism of PTZ fungal activity:

• Activity is strongly metal-dependent, showing zinc is critical to activity of PTZ:

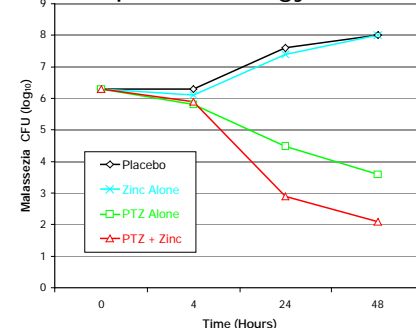


PTZ Activity can be Enhanced by Excipient Zinc

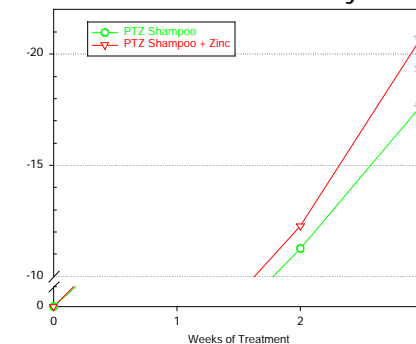
▶ In vitro Microbiology:



▶ In vivo Scalp Microbiology:

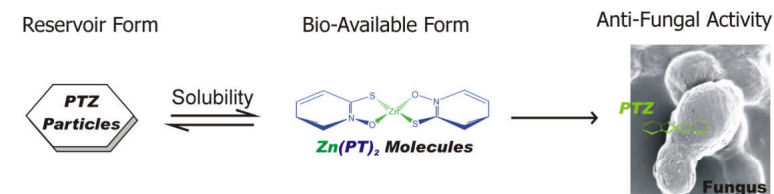


▶ Clinical Anti-Dandruff Efficacy:

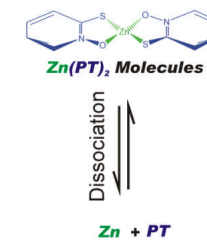


Mechanism of Zinc Potentiation of PTZ Activity

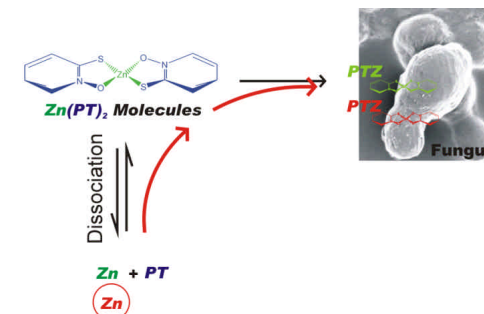
▶ The bio-active form of PTZ is the intact molecule:



▶ The PTZ molecule can dissociate to the less effective components zinc and pyrithione:

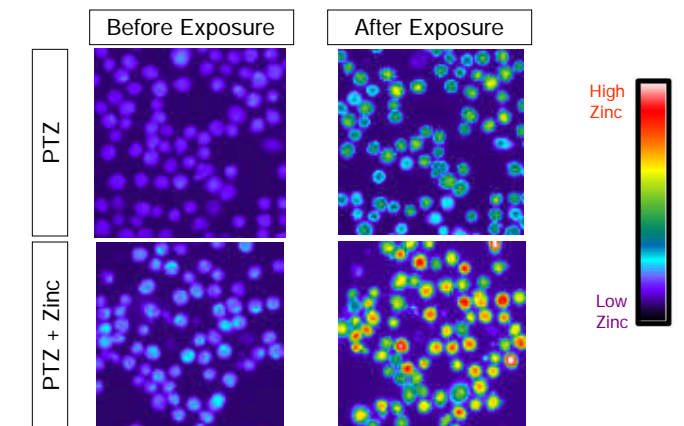


▶ Addition of zinc shifts the equilibrium back in the direction of the intact PTZ, thereby maximizing the amount of PTZ available:



Experimental Support for Potentiation Mechanism

▶ Quantitation of zinc transport into model cells demonstrates increased cellular delivery for the combination of PTZ + Zn:



Conclusions

- ▶ PTZ is a potent anti-fungal whose activity requires zinc
- ▶ Potentiation of PTZ shampoo with excipient zinc increases in vitro and in vivo anti-fungal activity and is manifested as improved anti-dandruff clinical efficacy
- ▶ The mechanism involves maintaining an equilibrium favorable to maximizing the bio-availability of PTZ

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