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## *Staphylococcus Aureus* infections in psoriasis plaques

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**Introduction:** Psoriasis is an inflammatory condition of the skin, of which chronic plaque psoriasis is the most common form (1). Psoriasis is associated with alteration in the composition of skin bacterial biota (2). *Staphylococcus aureus* (3), group A *Streptococcus* and *Streptococcus pyogenes* are involved in psoriasis pathogenesis in genetically predisposed individuals (2,4-6). *S. aureus* colonization of lesional skin was associated with a significantly higher PASI (Psoriasis Area Severity Index) score, even more evident when isolated strains were toxigenic (5,7).

**Methodology:** This study aimed to investigate the prevalence of infections with pathogenic bacteria in psoriasis plaques. For this purpose, randomly selected patients with plaque psoriasis were tested for bacterial infections in skin lesions using conventional microbiological methods.

**Results:** *S. aureus* was cultivated in 75 of the 205 samples (36.6%), while methicillin-resistant *S. aureus* (MRSA) was identified in 45 of 205 samples (21.9%). Other Gram-positive and Gram-negative cocci and bacilli were cultivated from psoriasis plaques: *Staphylococcus* spp. (representing coagulase negative staphylococci – S.Co.N.) in 122 samples (59.5%), *Bacillus/Paenibacillus* spp. in 58 samples (28.3%), *Streptococcus* spp. in 25 samples (12.2%), *Enterobacteriaceae* in 19 samples (9.3%) (of which *Klebsiella* spp. was present in 4 samples, *Enterococcus* spp. in 3 samples, and *Escherichia coli* in 2 samples, representing 2%, 1.5% and 1%, respectively), *Enterococcus* spp. in 14 samples (6.8%), non-fermenting bacteria in 14 samples (6.8%) (including *Pseudomonas aeruginosa* which was cultivated in 2 samples, 1% respectively), and *Corynebacterium* spp. in 7 samples (3.4%).

**Conclusion:** Gram-positive bacteria were the most frequently found bacteria in psoriasis plaques. Of them, *S. aureus* was the most prevalent, represented especially by MRSA strains. This study is intended as a warning about the necessity of evaluating bacterial infections in psoriasis plaques, in order to clarify the connection between skin infection and onset or worsening of psoriasis pathology.

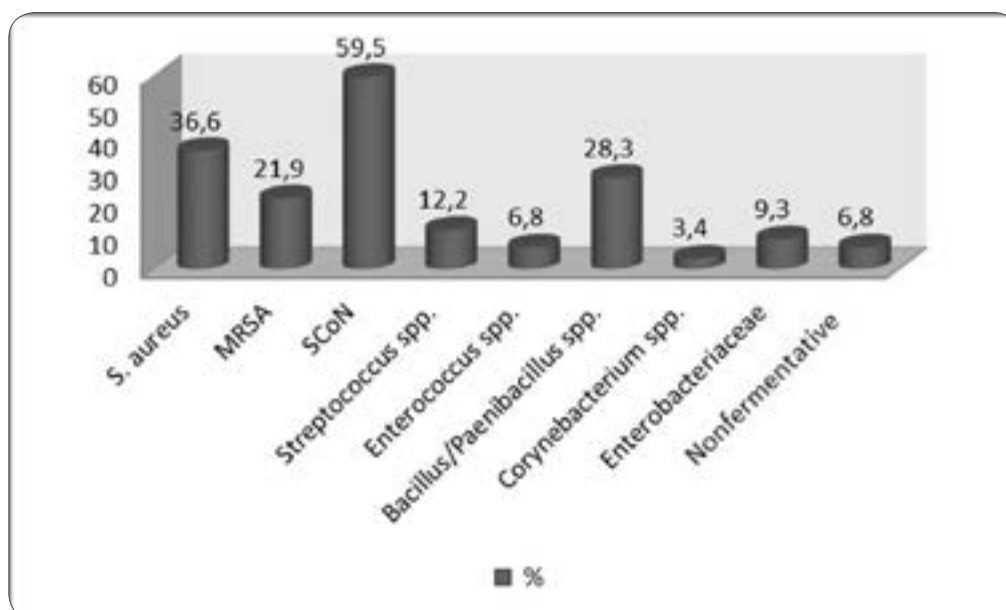


Figure 1: Bacterial species and bacterial groups found in psoriasis plaques

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## Recent Publications:

1. NALDI L., GAMBINI D., The clinical spectrum of psoriasis. *Clinics in Dermatology*, 2007, 25, 510–518..
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3. SKOV L., BAADSGAARD O., Bacterial superantigens and inflammatory skin diseases. *Clin.Exp.Dermatol.*, 2000, 25, 57–61.
4. WEISENSEEL P., PRINZ J.C., Incidental detection of *S. pyogenes*-DNA in psoriatic skin by PCR., *Arch.Dermatol. Res.*, 2005, 296, 573–576.
5. OKUBO Y., OKI N., TAKEDA H., AMAYA M., ITO S., OSADA M., UTSUMI M., KOGA M., KAWASHIMA H., Increased microorganisms DNA levels in peripheral blood monocytes from psoriatic patients using PCR with universal ribosomal RNA primers. *J.Dermatol.*, 2002, 29, 547–555.
6. TOMI N.S., KRANKE B., ABERER E., Staphylococcal toxins in patients with psoriasis, atopic dermatitis, and erythroderma, and in healthy control subjects. *J.Am.Acad.Dermatol.*, 2005, 53, 67–72.
7. BALCI D.D., DURAN N., OZER B., GUNESACAR R., ONLEN Y., YENIN J.Z., High prevalence of *Staphylococcus aureus* cultivation and superantigen production in patients with psoriasis. *Eur J Dermatol.*, 2009, 19(3), 238-242.

## Biography

Violeta Ionescu obtained DVM and PhD degrees in Veterinary Medicine from the University of Agronomic Sciences and Veterinary Medicine in Bucharest, Romania. Her focus and publications during doctoral studies targeted veterinary parasitology. Due to her interest in the One Health concept, she joined the group of Romanian scientists at Activeimmunity, Bucharest led by company president, Dr. Ionel Victor Patrascu, a well-known specialist in virology and vaccinology, that develop alternative immunological approaches for infections with antimicrobial resistance (AMR) microorganisms in humans. Her work also targets novel immunomodulatory approaches in psoriasis.

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## Notes: