Introduction
N-acetylglucosamine (NAG) is a chemically-neutral, amino sugar found in human proteoglycans and glycosaminoglycans (GAGs). Studies have shown that topically-applied NAG can stimulate the synthesis of water-binding GAGs by fibroblasts and keratinocytes, thus providing a basis for its use in anti-aging skincare. An anti-aging study of NAG revealed valuable cosmetic effects including diminished mottled pigmentation, improved skin clarity, and increased skin firmness and elasticity, with a corresponding increase in skin thickness, so-called plumping. 

Other research has shown that NAG interacts with glycoproteins involved in corneocyte binding and intercellular cohesion, and that topical NAG can increase cell turnover rate and desquamation. NAG enhanced cell turnover rate and desquamation, which was not as effective as the glycolic acid control (92%).

Clinical Evaluations:
NAG enhanced cell turnover rate and desquamation.

N-Acetyl Glucosamine (NAG) is a chemically-neutral, amino sugar found in human proteoglycans and glycosaminoglycans (GAGs), including hyaluronic acid. Studies have shown that NAG significantly reduced both inflammatory and non-inflammatory lesions in acne skin. NAG significantly reduced inflammatory lesions at week 4 and week 8, and non-inflammatory lesions at weeks 2, 4, and 8 (*p ≤ 0.05). BP was significantly more effective than NAG for inflammatory lesions at week 4 and week 8 (*p ≤ 0.01).

Clinical Study: Design: prospective, double-blind, positive controlled study with direct-comparison to base products; 5 subjects in the NAG group and 4 subjects in the BP group. Objective: 1. To compare NAG with a standard acne treatment (BP) for lesion counts at the late-time points (weeks 4 and 8). 2. NAG statistically-outperformed BP for skin tolerability and mildness parameters. 3. Self-assessed cosmetic advantages were noted with NAG early in the study for reductions in redness and swelling.

References