Scalp Health Is Becoming the Foundation of Sustainable Hair Growth: Groland Introduces an AI-Driven Molecular Solution

CHINA, June 8, 2026 / EINPresswire.com/ -- When consumers search for the best scalp serum for scalp anti-aging and hair growth, the focus is increasingly shifting beyond traditional hair-growth claims alone. Emerging scalp biology research suggests that long-term hair wellness depends on preserving the scalp ecosystem that supports healthy follicular function over time. Scientists are now studying how oxidative stress, chronic inflammation, collagen decline, barrier dysfunction, microbiome imbalance, and scalp microenvironment stiffening may contribute to earlier stages of follicular aging long before visible hair loss becomes obvious. This evolving scientific framework is now being referred to as scalp wellness --- a scalp-care approach focused on maintaining the long-term biological health of the scalp environment itself. Instead of treating hair thinning as only a cosmetic or isolated follicle issue, scalp wellness focuses on preserving follicular stem-cell signaling, extracellular matrix integrity, scalp resilience, inflammatory balance, and tissue regeneration capacity. As a result, many scalp-care experts increasingly believe that the best scalp serums for hair growth may ultimately be those designed not only to support follicle activation, but also to help maintain a healthier scalp ecosystem over time. Groland was built specifically around this emerging scalp wellness paradigm from the beginning.

Hair Growth Is Becoming A Scalp Biology Problem

Traditional hair-growth products often treated hair loss as an isolated follicle problem. But emerging scalp biology research increasingly suggests that follicles cannot function independently from the scalp environment surrounding them. Inflammation, oxidative stress, weakened extracellular structure, scalp barrier decline, microbiome imbalance, and reduced tissue resilience can gradually alter the biological conditions in which follicles operate. Over time, these upstream changes may contribute not only to visible thinning, but also to follicular miniaturization, shortened anagen phases, excess oil secretion, scalp sensitivity, and long-term deterioration of scalp condition.

Research surrounding hair follicle stem cells (HFSCs) is also reinforcing this shift. Recent studies increasingly point to autophagy, AMPK signaling, collagen integrity, inflammatory regulation, and microenvironment flexibility as core biological factors influencing follicular regeneration and long-term hair vitality. In other words, healthy hair is increasingly being understood as the outcome of a healthier scalp ecosystem maintained consistently over time.

The Industry Is Moving beyond Traditional Scalp Care

Historically, most scalp products were positioned as cosmetic care solutions --- scalp oils, soothing treatments, cleansing products, or temporary nourishment steps within broader haircare routines. But scalp wellness is changing the role of scalp serums entirely. A new generation of scalp-focused biotechnology is beginning to treat the scalp as a dynamic biological system rather than a cosmetic surface. This means supporting the scalp structurally, metabolically, and biologically over the long term.

As a result, scalp serums are increasingly evolving from "ingredient-based care" into molecular-level scalp intervention systems. And this transition is exactly where Groland positions itself.

Groland Represents A Shift from Ingredient Care to AI-Powered Molecular Scalp Intervention

Groland originates from the world's first AI laboratory dedicated specifically to scalp health, with its R&D center based in Boston and built upon MIT's scientific foundation. Powered by XtalPi's AI-driven biotechnology platform, Groland applies pharmaceutical-grade standards to scalp wellness research, shifting away from traditional empirical formulation toward AI-driven molecular design. Its "AI + Robotics" molecular-discovery system transforms ingredient development into an AI-driven formulation and ingredient development process involving automated screening, molecular prediction, and precision validation. Compared with conventional cosmetic development cycles, the platform reduces R&D timelines to roughly one-third while improving development efficiency by over forty times.

But more importantly, Groland reframes hair concerns themselves. Rather than viewing hair thinning as simply a cosmetic issue or isolated follicle problem, Groland approaches it as a scalp-aging issue involving structural degeneration, inflammatory stress, follicular dormancy, and microenvironment imbalance. This shift in scientific philosophy shaped the development of the Groland AquaKine™ Scalp Serum.

A Dual-System Approach: Follicle Reactivation + Scalp Structural Reinforcement

At the center of Groland's scalp wellness framework is its proprietary "Gemini" molecular system: Remeanagen™ (XTP-118) and AquaKine™ Peptide (XTP-016). Both molecules have assigned INCI name, representing an important milestone for AI-designed scalp active ingredients entering the global cosmetic standard system. Rather than relying on a single-pathway solution, Groland developed a dual-mechanism model centered on both follicular activation and scalp structural reinforcement.

Remeanagen™ functions primarily as a follicle-reactivation molecule. Mechanistically, it acts as a novel AMPK agonist capable of activating autophagy pathways. This process helps reactivate dormant hair follicle stem cells, support ATP energy production, and promote the transition of follicles from the telogen phase back into the anagen phase. Experimental data showed ATP

increased to 129.23%, supporting improved follicular energy metabolism and stem-cell activation.
Meanwhile, AquaKine™ Peptide focuses on strengthening the scalp environment itself. As an intelligent cyclic peptide, it promotes the synthesis of multiple collagen types including I, III, V, and XVII. Experimental testing demonstrated increases up to 248.78% in type I collagen, 178.18% in type III, 165.91% in type V, and 175.93% in type XVII.
A key scientific basis for this mechanism comes from the study "Hair follicle aging is driven by transepidermal elimination of stem cells via COL17A1 proteolysis" (Science, 2016), which demonstrated that loss of COL17A1 directly leads to follicular stem cell depletion and hair follicle aging. By reinforcing structural integrity and reducing inflammatory stress, AquaKine™ Peptide aims to maintain a more stable follicular environment over time.
Together, the two systems form a broader scalp-longevity strategy: reactivating dormant follicles while simultaneously rebuilding the biological environment required to sustain them.

Clinical Signals Are Beginning to Validate the Scalp Wellness Model

The scalp wellness framework is no longer purely theoretical. Independent third-party testing on Groland AquaKine™ Scalp Serum has begun to demonstrate measurable improvements across both scalp condition and follicular health indicators. In a 14-day clinical evaluation, scalp elasticity, firmness, and texture quality improved, while sebum secretion decreased by 58.16%. Scalp redness and barrier-related indicators improved by 43.94%, and root strength and hair volumizing performance increased by 14.17%.
In a separate six-week human study involving 32 participants, hair density increased by 21.21%, anagen-phase hair ratio increased by 9.09%, and average hair shaft count per follicular unit improved by 9.74%. At the scalp environment level, sebum levels decreased by 29.58%, while transepidermal water loss (TEWL) was reduced by 17.49%. Scalp hydration and elasticity increased by 89.64%.
Raman spectroscopy further confirmed a 9.12% relative penetration rate within 4 hours and a penetration depth of 115 μm, compared with benchmark products at 7.25% and 80 μm. Multiple irritation tests showed it's mild and non-irritating, and 63 hormonal substances were not detected.
Taken together, these findings increasingly validate the scalp longevity model: long-term hair health may ultimately depend on maintaining the biological integrity of the scalp ecosystem itself.

The Future of Hair Wellness May Belong to Scalp Care-Native Brands

The next generation of hair-wellness innovation may not come solely from stronger stimulation or faster cosmetic outcomes. Instead, it may come from deeper biological understanding of scalp aging, follicular cycling, tissue resilience, inflammatory signaling, and ecosystem-level maintenance.
As scalp wellness becomes central to hair wellness, the industry may gradually shift from cosmetic care toward molecular-level scalp intervention. Brands built natively around this paradigm --- rather than retrofitted into it later --- may ultimately define the next era of scalp science. Groland is positioning itself at the center of that transition.

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