Polydeoxyribonucleotide (PDRN)
One-Page Scientific & Strategy Summary

What it is
PDRN is a purified mixture of DNA fragments, traditionally derived from salmonid sources, used in regenerative medicine and increasingly in advanced skincare. It is best classified as a biopolymer active rather than a small-molecule cosmetic ingredient.

Core biological mechanisms

- Activation of the adenosine A2A receptor, increasing cAMP signaling, promoting angiogenesis, and reducing pro-inflammatory cytokine expression.
- Supply of nucleotides for the DNA salvage pathway, supporting cell proliferation and repair under stress conditions.
- Modulation of extracellular matrix turnover through reduced protease activity, supporting collagen preservation.

Evidence snapshot
• In vitro and animal models show accelerated re-epithelialization, increased fibroblast activity, and improved collagen deposition.
• Clinical data support wound healing and anti-inflammatory benefits, particularly in injectable and medical applications.
• Topical evidence supports barrier restoration and skin recovery, with more conservative claim scope.

Use cases
Injectables and mesotherapy, wound dressings and hydrogels, topical serums and skin boosters targeting barrier repair and regeneration.

Strategic considerations
PDRN offers strong biological plausibility and tolerability, but product success depends on appropriate delivery format, conservative claims, and regulatory alignment. Animal-derived sourcing and purity documentation are critical for risk management.

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