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IN VITRO AND CLINICAL STUDIES

In vitro analysis of the effects on wound healing of high and low molecular weight chains of hyaluronan and their hybrid H-HA/L-HA complexes.

D'Agostino A. et al.

BMC Cell Biol 2015;16:19.

SUMMARY

[...] In this study, low molecular weight HA (L-HA) proved not to be toxic/inflammatory, and therefore permitted wound closure similarly to the well-known bioactive high molecular weight HA (H-HA). Novel hybrid complexes formed by H-HA and L-HA performed better than HA alone, both at high or low concentrations. Complexes also showed better stability of long chains HA to hyaluronidases attack, presumably prolonging their half-lives in vivo. L-HA accelerates wound repair at an earlier stage, while H-HA has no short-term effect, probably due to its initial higher viscosity. The outcomes of this study may be the pillars for further in vivo studies to promote HA hybrid complex use in innovative medical devices for tissue regeneration. [...]

Full text available on PubMed, PMID: 26163378



Hyaluronan hybrid cooperative complexes as a novel frontier for cellular bioprocesses reactivation.

Stellavato A. et al.

PLoS One 2016;11(10):e0163510.

SUMMARY

[...] In this study, the multi-faceted interaction between keratinocytes and dermal fibroblasts in presence of the novel hybrid cooperative complexes HA formulation was evaluated. The in vitro model employed, has made possible the functional interaction between the two cell types, involving the synthesis and assembly of the skin ECM proteins. The results showed a notably different biological response, regarding collagen and elastin expression and synthesis, of HA hybrid cooperative complexes respect to native HA formulations. A key feature of the hybrid cooperative complexes was the prolonged stability to enzymatic attack, despite the absence of chemical cross linking. These findings could overall corroborate the in vivo clinical data obtained on the HA hybrid cooperative complex³⁸. [...]

Full text available on PubMed, PMID: 27723763



Hybrid Complexes of High and Low Molecular Weight Hyaluronans Highly Enhance HASCs Differentiation: Implication for Facial Bioremodeling.

Stellavato A. et al.

Cell Physiol Biochem 2017;44:1078-1092.

SUMMARY

[...] In this study we demonstrate for the first time that HCCs potentiate ASCs differentiation, preserving both morphology and viability. The quality and the efficiency of the differentiation are greater than that obtained with the other HA formulations, both in terms of gene, protein and morphological expression, and with the formation of large and numerous lipid vacuoles. This is of major importance in clinical use. We can assume that this substance can affect the differentiation of resident fat cells that are present in both the dermis and hypodermis, and counteract the effect of "resorption" of the fat compartment, that is typical of aging. [...]

Full text available on PubMed, PMID: 29179206



Efficacy, safety, and tolerance of a new injection technique for high and low molecular weight hyaluronic acid hybrid complexes.

Laurino C. et al.

Eplasty 2015;15:e46.

SUMMARY

[...] In the current evaluation, we demonstrated efficacy, safety, and tolerance of a new skin rejuvenation procedure with high- and low-molecular-weight HA hybrid complexes injected into the lower impedance subdermal facial areas. The injection of biorevitalizing medical devices in lower impedance sites has some advantages. The product can stimulate cell proliferation in the facial adipose tissue, which is a source of noncommittal staminal cells that differentiate into cutaneous fibroblasts. The physician judged it easy to inject. Patients were very satisfied at the end of the treatment (87.9%) and the compound's outcome evaluated by the physician was optimal in 51.5% of the cases and good in 45.5%. None of the patients expressed negative opinions, and no pain was reported. [...]

Full text available on PubMed, PMID: 26491508



Facial bioremodeling by intradermal injection of a stabilized hybrid complex of high and low molecular weight hyaluronic acid: prospective study on 30 patients.

Rodriguez Abascal M. et al.

Eur Aesth Plast Surg J 2015;5(2):124-131.

SUMMARY

[...] Use of the stabilized hybrid high and low molecular weight HA complexes via intradermal injection with the BAP technique to improve facial aging, skin texture, reduce laxity and attenuate fine wrinkles proven to be effective, with a very low rate of complications and no other adverse reactions. Furthermore, it is important to highlight the high level of satisfaction among patients. Similarly, from a safety perspective, it is worth noting the low rate of complications resulting from the study, as well as that all the adverse events that arose were derived from the application technique and not inherent to the product. [...]

Efficacy and tolerance of an injectable medical device containing stable hybrid cooperative complexes of high and low molecular weight hyaluronic acid: a monocentric 16 weeks open-label evaluation.

Sparavigna A. et al.

Clin Cosmet Investig Dermatol 2016;9:297-305.

SUMMARY

[...] The results of this explorative prospective study, evaluating the clinical efficacy and tolerability, clearly supports the bio-remodeling and rejuvenation claim of the hybrid cooperative complexes. All subjective clinical outcomes and the majority of objective instrumental results indicate a rapid and statistically significant improvement in the face attractiveness parameters. In particular, the volumetric and tightening effects were significant and maintained until the end of the study. From week 8, filling, anti-wrinkle, plumping, and hydrating activities become statistically significant, as measured by the reduction of WSRS score, profilometric, torsionometric, and skin electrical capacitance parameters. These instrumental and clinical findings are also confirmed by the photographic documentation. [...]

Full text available on PubMed, PMID: 27713647



Hyaluronic acid hybrid cooperative complexes and the BAP (Bio Aesthetic Points) technique: the new edge in biorejuvenation.

Beatini A. et al.

Aesthetic Medicine 2016;2(2)

SUMMARY

[...] Objectivity in the post treatment showed better skin turgor (similar to a tightening effect), brighter skin, reduced nasolabial fold depth and improved texture and pigmentation. The patients reported having experienced less pain and less bruising than traditional biostimulation. They appreciated the reduced time and number of sessions, and were generally satisfied with the overall improvement of the face and long lasting results. The hybrid cooperative complexes treatment of skin laxity, wrinkles and folds of the middle and lower third of the face resulted in a significant improvement of skin hydration and viscoelasticity, combined with a high level of compliance and satisfaction referred by the patients. [...]

*Summaries were extracted from the studies.