Effectiveness of a formulation of peptides with vitamin C for reducing skin aging

Sergio Escobar[1], Karl Lintner[2], Audrey Valois[3], Marion Nielsen[3], Brigitte Closs[4], and Delphine Kerob[3]
[1]Clinic BAAS Institute, Buenos Aires, Argentina; [2]Kal'idees, Paris, France; [3]Laboratoires Vichy, Paris, France; [4]Silab, Saint-Viance, France.

RATIONALE AND OBJECTIVES

- Peptides stimulate collagen neosynthesis and vitamin C is a well-recognized antioxidant with anti-aging properties.
- Their formulation is critical for delivery across the stratum corneum[1].
- An anti-aging formula has been developed to optimize the bioavailability of pure vitamin C at 10% concentration, combined with a biopeptide complex (rice and lupin), hyaluronic acid, and Vichy volcanic mineralizing water (Liftactiv Peptide-C [Vichy]).
- Peptide-C is packaged in daily-dose amber glass ampoules requiring no preservatives.

The objective of these clinical studies was to evaluate, by clinical assessments and subjective evaluations, the effectiveness on wrinkles and radiance of a topical treatment containing peptides and vitamin C.

Learning outcomes include understanding the importance of the composition of topical formulations to achieve effective results since peptides and vitamin C are well-known anti-aging ingredients but the formulation is critical for delivery across the stratum corneum.

METHODS

Three open, clinical studies assessed the efficacy of twice-daily Peptide-C formula.

STUDY 1: DANSYL CHLORIDE TESTING

- **Subjects:** 35 females
- **Method:**
  - Dansyl chloride patches were placed on both forearms for 24 hours and skin renewal was assessed by fluorescence measurements
  - Peptide-C was applied twice-daily on one forearm (designated by computer-generated randomization) for 3 weeks
  - The subject and evaluating investigator were blinded to the treatment designation

STUDY 2: COSMETOCLINICAL STUDY AND SUBJECT QUESTIONNAIRES

- **Subjects:** 51 Caucasian females aged 40-60 years old
- **Inclusion criteria:**
  - Crow's feet wrinkles of grade ≥ 2 and < 4 (on a scale from 0 [no visible crow's feet wrinkles] to 6 [very visible crow's feet wrinkles])
  - Forehead wrinkles of grade ≥ 2 (on a scale from 0 [no visible forehead wrinkles] to 5 [very visible forehead wrinkles])
  - Nasolabial fold of grade ≥ 3 (on a scale from 0 [no visible nasolabial fold] to 5 [very visible nasolabial fold])
- **Assessments:**
  - Investigator clinical scoring of wrinkles based on Dynamical Atlas visual assessment (N=40)
  - Subject questionnaires (N=47)

STUDY 3: INSTRUMENTAL STUDY AND SUBJECT QUESTIONNAIRES

- **Subjects:** 53 Caucasian females aged 40-55 years old
- **Inclusion criteria:**
  - Crow's feet wrinkles of grade ≥ 2 and < 5 with a main wrinkle of ≥ 2 cm in length with no crossed wrinkles
- **Assessments:**
  - Print of the designated crow's foot wrinkle (randomly assigned) by instrumental scoring (quantification software and 3D fringe projection analysis; N=40)
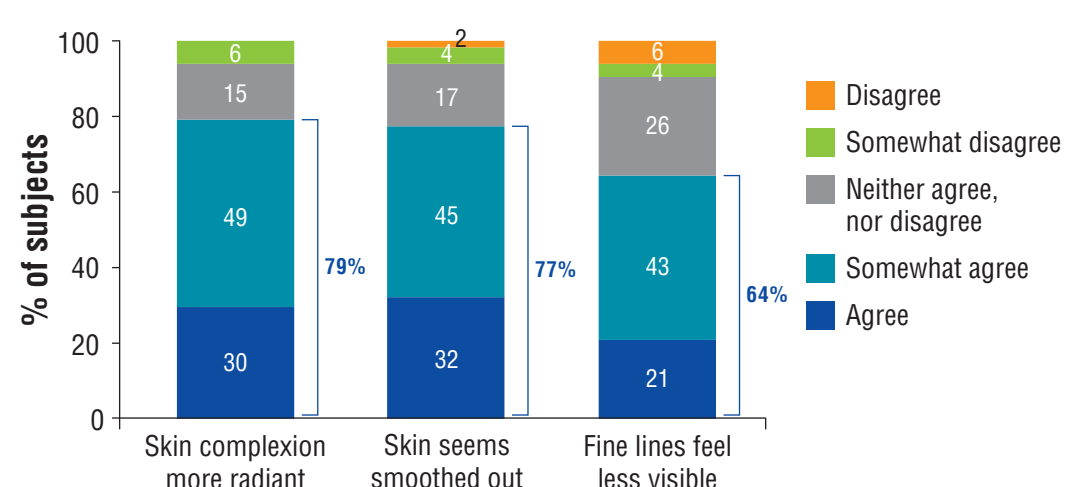 - Subject questionnaires (N=51)

RESULTS

STUDY 1: DANSYL CHLORIDE CELL PROLIFERATION TESTING (N=32)

- Of 35 women enrolled, 32 had no protocol deviations
- Mean fluorescence at day 22 was lower for Peptide-C treated skin than untreated skin (59.6 vs 64.9; p<.0001)
- The number of days for fluorescence to disappear from the skin is the rate of cell turnover
- Mean cell turnover was faster for Peptide-C (17.1 vs 19.2 days; p<.0001)

Mean cell turnover was faster for Peptide-C than for untreated skin indicating that Peptide-C improves cell exfoliation.

STUDY 2: INVESTIGATOR CLINICAL SCORING OF WRINKLE SEVERITY (N=40)

Of 51 women enrolled, 47 had no protocol deviations, including 40 with clinical scoring.
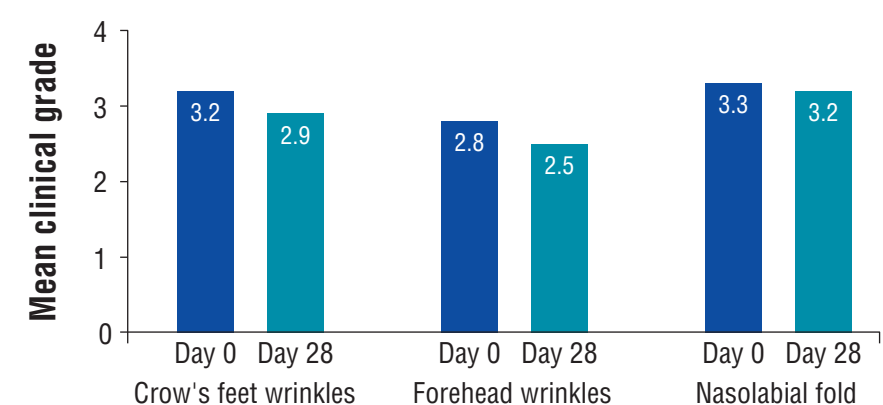
After 28 days of Peptide-C vs. baseline (all p<.05):
- crow's feet wrinkles decreased 9%
- forehead wrinkles decreased 11%
- nasolabial folds decreased 5%

STUDY 3: INSTRUMENTAL SCORING OF NUMBER OF WRINKLES (N=40)

Of 53 women enrolled, 51 had no protocol deviations, including 40 with instrumental scoring.

Quantirides Evaluation	Mean % Evolution Day 30 vs. baseline
Number of wrinkles	**-11.5%** (p<.05)
Total surface (mm²)	**-15.7%** (p<.05)
Total length (mm)	**-13.1%** (p<.05)

After 29 days of Peptide-C vs. baseline significant decrease of wrinkles and fine lines (all p<.05):
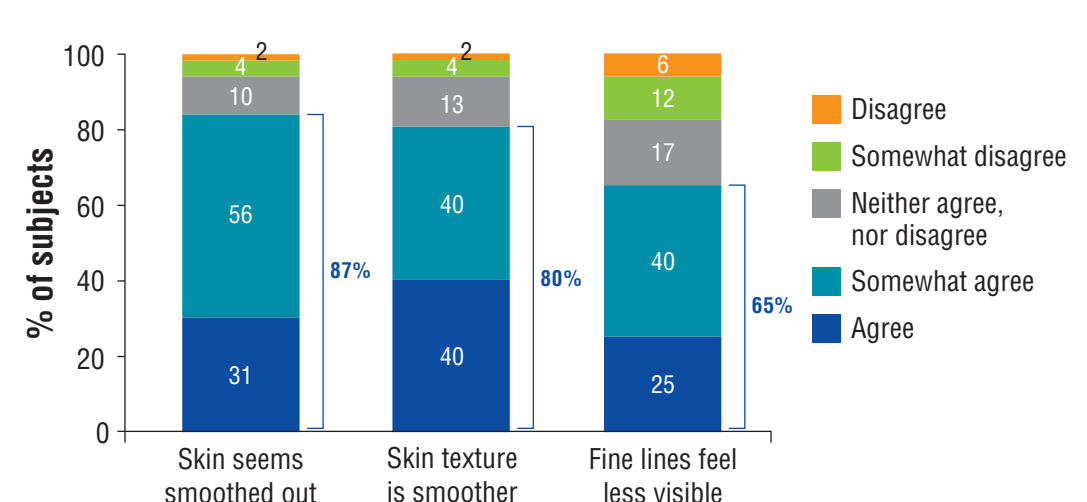- number, total surface, and total length

STUDY 2: SUBJECT QUESTIONNAIRE (N=47)

After 28 days application of Peptide-C:
- 79% of subjects indicated their skin complexion was more radiant
- 77% indicated their skin seemed smoothed out
- 64% indicated the fine lines were less visible

STUDY 3: SUBJECT QUESTIONNAIRE (N=51)

After 29 days application of Peptide-C:
- 87% indicated their skin seemed smoothed out
- 80% of subjects indicated their skin texture was smoother
- 65% indicated the fine lines were less visible

CONCLUSIONS

In three clinical studies, this formula of Peptide-C topical serum (containing peptides and vitamin C) in innovative packaging was consistently shown to be effective in improving facial wrinkles and skin renewal.

References
[1] Gorouhi F, Maibach HI. Role of topical peptides in preventing or treating aged skin. Int J Cosmet Sci. 2009 Oct;31(5):327-45.