- **Ex-vivo and In-vivo Tests**

- **Hair tresses:**
  - Bought to international recognized providers or obtained from specific donors
  - Virgin or damaged hair
  - Several hair types: straight, curly, afro, etc

- **Volunteers:**
  - 3000 volunteers database
  - Caucasian, negroid, asian
Hair strengthening ex vivo efficacy test

- **Study goal**: to evaluate the influence of hair care products on the hair strength
- **Tresses**: 6 hair tresses/product or control
- **Product application**: single or multiple applications (to define with sponsor)
- **Measurements**: 
  - Hair strength is determined with a force-meter on 10 hair fibres per tress, analysing the required strength to completely break a hair fibre
- **Time-points of evaluation**: before and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
Hair damage prevention or repair ex vivo efficacy test

- **Study goal:** to evaluate the influence of hair care products on the prevention or repair of hair damaged by heat, bleaching, or other hair treatments.

- **Tresses:** 6 hair tresses/product or control.

- **Product application:** single or multiple applications (to define with sponsor).

- **Measurements:**
  - Hair strength is determined with a force-meter on 10 hair fibres per tress, analysing the required strength to completely break a hair fibre.
  - Electronic microscopy photography.

- **Time-points of evaluation:**
  - Prevention test: before damage, after single or multiple applications (to define with sponsor), after damage.
  - Repair test: before damage, after damage and the after single or multiple applications (to define with sponsor).

- **Data analysis and Report**
Hair Keratin or Water Quantification ex-vivo Efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair keratin and/or water content
- **Tresses**: 6 hair tresses/product or control
- **Product application**: single or multiple applications (to define with sponsor)
- **Measurements**:
  - Keratin and/or water content of 3 hair fibers/tress is determined by DSC
- **Time-points of evaluation**: before and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
Hair Keratin or Water Quantification *in vivo* Efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair keratin and/or water content
- **Volunteers**: at least 20 volunteers, selected according to predefined inclusion and exclusion criteria
- **Product application**: single or multiple applications (to define with sponsor)
- **Measurements**:
  - Keratin and/or water content of 3 hair fibers per volunteer is determined by DSC
  - Subjective evaluation by the volunteer
- **Time-points of evaluation**: before and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
Hair Shine *in vivo* or *ex-vivo* Efficacy testing

**IN VIVO**
- **Study goal:** to evaluate the influence of hair care products on the hair shine
- **Volunteers:** at least 20 volunteers, selected according to predefined inclusion and exclusion criteria
- **Product application:** single or multiple applications (to define with sponsor)
- **Measurements:**
  - hair shine is measured with a glossymeter
  - Subjective evaluation by the volunteer
- **Time-points of evaluation:** before and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**

**EX VIVO**
- **Study goal:** to evaluate the influence of hair care products on the hair shine
- **Tresses:** 6 hair tresses/product or control
- **Product application:** single or multiple applications (to define with sponsor)
- **Measurements:**
  - hair shine is measured with a glossymeter
- **Time-points of evaluation:** before and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
Hair Colour in vivo Efficacy testing

- **Study goal:** to evaluate the influence of hair care products on the hair colour; colour coverage; colour protection; long-lasting coloration

- **Volunteers:** 30 volunteers, selected according predefined inclusion and exclusion criteria

- **Product application:** single or multiple applications (to define with sponsor)

- **Measurements:**
  - hair colour is measured with a Colorimeter
  - Subjective evaluation by the volunteer

- **Time-points of evaluation:**
  - Colour protection: before coloration, immediately after coloration, after multiple product applications (to define with sponsor)
  - Colour coverage: before and after coloration
  - Long-lasting: before coloration, immediately after coloration, after x weeks of coloration

- **Data analysis and Report**
Hair Colour ex vivo Efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair colour; colour coverage; colour protection; long-lasting coloration
- **Tresses**: 6 hair tresses/product or control
- **Product application**: single or multiple applications (to define with sponsor)
- **Measurements**:
  - hair colour is measured with a Colorimeter
- **Time-points of evaluation**:
  - Colour protection: before coloration, immediately after coloration, after multiple product applications (to define with sponsor)
  - Colour coverage: before and after coloration
  - Long-lasting: before coloration, immediately after coloration, after x weeks of coloration
- **Data analysis and Report**
**Anti-hair loss in vivo efficacy testing**

- **Study goal:** to evaluate the influence of hair care products on the hair loss
- **Volunteers:** at least 20 volunteers, selected according to predefined inclusion and exclusion criteria
- **Product application:** multiple applications for at least 8 weeks (to adjust with sponsor)
- **Measurements:**
  - Hair density is assessed with a TrichoScan
  - Subjective evaluation by the volunteer
- **Time-points of evaluation:** before and after 8 weeks or more, depending on treatment duration (to define with sponsor)
- **Data analysis and Report**
Hair thickness in vivo efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair thickness
- **Volunteers**: at least 20 volunteers, selected according to predefined inclusion and exclusion criteria
- **Product application**: multiple applications for at least 8 weeks (e.g., to adjust with sponsor)
- **Measurements**:
  - Hair thickness and % de vellus hair are assessed with a TrichoScan
  - Subjective evaluation by the volunteer
- **Time-points of evaluation**: before and after 8 weeks or more, depending on treatment duration (e.g., to define with sponsor)
- **Data analysis and Report**
Hair growth in vivo efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair growth
- **Volunteers**: at least 20 volunteers, selected according predefined inclusion and exclusion criteria
- **Product application**: multiple applications for at least 8 weeks (e.g., to adjust with sponsor)
- **Measurements**:
  - Hair length is assessed with a TrichoScan two times distancing 3-4 days to evaluate then the daily hair growth rate
  - Subjective evaluation by the volunteer
- **Time-points of evaluation**: hair growth rate is evaluated before the treatment and after 8 weeks or more, depending on treatment duration (e.g., to define with sponsor)
- **Data analysis and Report**
Anti-sebum *in vivo* efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair scalp sebum
- **Volunteers**: at least 20 volunteers, selected according predefined inclusion and exclusion criteria
- **Product application**: single or multiple applications (to adjust with sponsor)
- **Measurements**:
  - Hair sebum is assessed with a Sebumeter
  - Subjective evaluation by the volunteer
- **Time-points of evaluation**: before the treatment and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
**Study goal:** to evaluate the influence of hair care products on dandruff

**Volunteers:** at least 20 volunteers, selected according predefined inclusion and exclusion criteria

**Product application:** multiple applications for at least 4 weeks (e.g., to adjust with sponsor)

**Measurements:**
- Hair dandruff is assessed by squamamometry + Colorimeter
- Total Dandruff Severity Score determination
- Subjective evaluation by the volunteer

**Time-points of evaluation:** before the treatment and after single or multiple applications (to define with sponsor)

**Data analysis and Report**
Anti-frizz ex-vivo Efficacy testing

- **Study goal**: to evaluate the influence of hair care products on the hair frizz
- **Tresses**: 6 hair tresses/product or control
- **Product application**: single or multiple applications (to define with sponsor)
- **Procedure**: after treatment with the product test the tresses are straightened and placed in room at 80% RH for at least 6 hours
- **Measurements**:
  - Photographies are taken in standardized positions and angle, height and area of the tress are determined using an image processing and analysis program
  - Video is recorded for the 6 hours
- **Time-points of evaluation**: after straightening and after exposure to high relative humidity
- **Data analysis and Report**
Anti-static charge ex-vivo Efficacy testing

- **Study goal:** to evaluate a product’s efficacy in reducing the “fly away effect” induced by static charge
- **Tresses:** 6 hair tresses/product or control
- **Product application:** single or multiple applications (to define with sponsor)
- **Measurements:**
  - Photographies are taken in standardized positions and angle, height and area of the tress are determined using an image analysis software
- **Time-points of evaluation:**
  - Measurements are taken before and after combing the hair 6 times with a plastic comb (to measure the fly-away effect) before test product application and after 1 or multiple applications (to define with sponsor)
- **Data analysis and Report**
Recovery of natural hair movement ex-vivo Efficacy testing

- **Study goal**: to evaluate a product’s efficacy in restoring the natural movement of hair, after it has been compromised by bleaching.
- **Tresses**: 3 hair tresses/product or control
- **Product application**: single or multiple applications (to define with sponsor)
- **Measurements**:
  - A filming camera will capture a video of the hair movement when the hairdryer is switched on at a pre-defined position from the tress during the 25 seconds. Video frames obtained at several time-points (11, 12, 13, 14, 15, 16, 17, 18, 19 and 20 seconds) are analyzed by measuring the maximum length, height and angle of the tress using an image analysis software.
- **Time-points of evaluation**:
  - Measurements are taken before and after bleaching and after 1 or multiple product applications (to define with sponsor)
- **Data analysis and Report**
Hair Combing ex-vivo Efficacy testing

- **Study goal**: to evaluate a product’s influence on hair combing
- **Tresses**: 6 hair tresses/product or control
- **Product application**: single or multiple applications (to define with sponsor)
- **Measurements**:
  - The strength needed to comb the hair tresses is instrumentally with a Texturometer TA XT (Stable Micro Systems)
  - Can be performed on wet and dry hair
- **Time-points of evaluation**:
  - Measurements are taken before and after 1 or multiple applications (to define with sponsor)
- **Data analysis and Report**
In vivo use test with professional hairdressers assessment (Salon test)

- **Study goal**: to evaluate the influence of hair care products on hair properties
- **Volunteers**: at least 20 volunteers, selected according predefined inclusion and exclusion criteria
- **Product application**: single or multiple applications (to adjust with sponsor)
- **Measurements**:
  - Hairdressers score characteristics of the human hair such as: nutrition, hydration, volume, shine, softness, greasiness, coatedness, malleability, “Light weight hair” and stringiness in ordinal-type rating scales.
  - Subjective evaluation by the volunteer (optional)
- **Time-points of evaluation**: before the treatment and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
Consumer acceptability test

- **Study goal:** to evaluate the acceptability of hair care products by the end consumers
- **Volunteers:** at least 20 volunteers, selected according predefined inclusion and exclusion criteria
- **Product application:** single or multiple applications (to adjust with sponsor)
- **Measurements:**
  - Subjective evaluation by the volunteer, including evaluation of organoleptic characteristics, product performance, efficacy, intention of future use and tolerance.
- **Time-points of evaluation:** before the treatment and after single or multiple applications (to define with sponsor)
- **Data analysis and Report**
PROJECT MANAGEMENT

YOUR PROBLEM
VOTRE PROBLÈME

OUR ANSWER
NOTRE RÉPONSE

STUDY DESIGN
DESIGN DE L’ÉTUDE

STUDY IMPLEMENTATION
RÉALISATION DE L’ÉTUDE

DATA MANAGEMENT
AND STATISTICS
GESTION DES DONNÉES ET
ANALYSE STATISTIQUE

REPORT
RAPPORT

Mod.003 Proposition
Study Plan and Technical Records
Mod.034 Report

INOVAPOTEK
PHARMACEUTICAL RESEARCH AND DEVELOPMENT
R&D, TESTING AND REGULATORY SERVICES TO THE PHARMACEUTICAL AND PERSONAL CARE INDUSTRIES

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