***CLAIMS***

1. A combination comprising at least one *Bifidobacterium sp.* selected from *Bifidobacterium bifidum* DSM 32403 and *Bifidobacterium bifidum* HA-132 (CNCM I-5898) and at least one fucosylated oligosaccharide for use in increasing nicotinamide mononucleotide (NMN) and/or nicotinamide adenine dinucleotide (NAD+) in the gut or the skin of a subject, when compared to a non-administered subject.
2. The combination for the use of claim 1, wherein the subject is an animal or a human.
3. The combination for the use of claim 1 or 2, wherein the combination is delivered by enteral or topical administration.
4. The combination for the use of claim 3, wherein the combination is delivered by oral administration or direct delivery to the gut.
5. The combination for the use according to any one of the preceding claims, wherein the fucosylated oligosaccharide is selected from the group consisting of 2'FL, 3FL, DFL, FSL LNFP-I, LNFP-II, LNFP-III, LNFP-V, LNFP-VI, LNDFH-I, LNDFH-II and LNDFH-III or a mixture thereof.
6. The combination for the use according to any one of the preceding claims, wherein the fucosylated oligosaccharide is a fucosyllactose, such as 2'FL, 3FL, DFL or a mixture thereof.
7. The combination for the use according to any one of claims 1 to 6, wherein the *Bifidobacterium sp.* can grow on any one of the HMOs selected from the group consisting of LNT-II, LNT, LNnT, 2'FL, 3FL, DFL, 3'SL and 6'SL.
8. The combination for the use according to any one of the preceding claims, wherein the increase in NMN and/or NAD+ is useful for treating or preventing deleterious effects of stress, or is effective against obesity or overweight.
9. The combination for the use according to any one of claims 1 to 7, wherein the increase in NMN and/or NAD+ slows down the aging process, extending the lifespan and vitality of a subject, when compared to a non-administered subject, wherein the aging process relates to preventing or delaying the onset of age-related conditions selected from the group consisting of age-induced cognition impairment, age-related memory disorder, constipation, loss of vitality, reduction of muscle mass and endurance, reduction of bone density, declined immune function and susceptibility to infectious diseases.
10. The combination for the use according to any one of claims 1 to 7, wherein the increase in NMN and/or NAD+ improves age-related diminished ovary reserve and is effective against ovarian aging of a subject, when compared to a non-administered subject.

11. The combination for the use according to any one of claims 1 to 7, wherein the increase in NMN and/or NAD+ is useful in improving muscle repair or regeneration, in particular in a subject with a physical injury or accident, muscle immobilization, muscle overuse, loss of blood circulation, or lack of muscle use after injury and/or relieves physical fatigue, when compared to a non-administered subject.

12. The combination for the use according to any one of claims 1 to 7, wherein the increase in NMN and/or NAD+ improves adverse skin condition, hair health, and/or antioxidation of a subject, when compared to a non-administered subject.

13. The combination for the use according to any one of claims 1 to 7, wherein the increase in NMN and/or NAD+ increases the abundance of the SCFA's acetate, propionate and/or butyrate in the gut of the subject, when compared to a non-administered subject.

14. The combination for the use according to any one of claims 1 to 13 wherein the subject is an elderly, an infant or a toddler.

15. The combination for the use according to any one of claims 1 to 14, in the preparation of a non-therapeutic anti-aging drug or a healthcare or skin care product.

16. A composition comprising at least one *Bifidobacterium sp.* selected from *Bifidobacterium bifidum* DSM 32403 and *Bifidobacterium bifidum* HA-132 (CNCM I-5898) and at least one fucosylated oligosaccharide.

17. The composition according to claim 16, wherein the at least one *Bifidobacterium sp.* can grow on sialyllactose and one or more HMOs selected from the group consisting of a neutral core HMO and a fucosylated HMO.

18. The composition according to claim 1616 or 17, wherein the fucosylated oligosaccharide is selected from the group consisting of 2'FL, 3FL, DFL, FSL, LNFP-I, LNFP-II, LNFP-III, LNFP-V, LNFP-VI, LNDFH-I, LNDFH-II and LNDFH-III or a mixture thereof.

19. The composition according to any one of claims 1616 to 1818, wherein the fucosylated oligosaccharide is a fucosyllactose.

20. The composition according to claim 19, wherein the fucosylated oligosaccharide is selected from 2'FL, 3FL, DFL or a mixture thereof.