

Supplementary figures

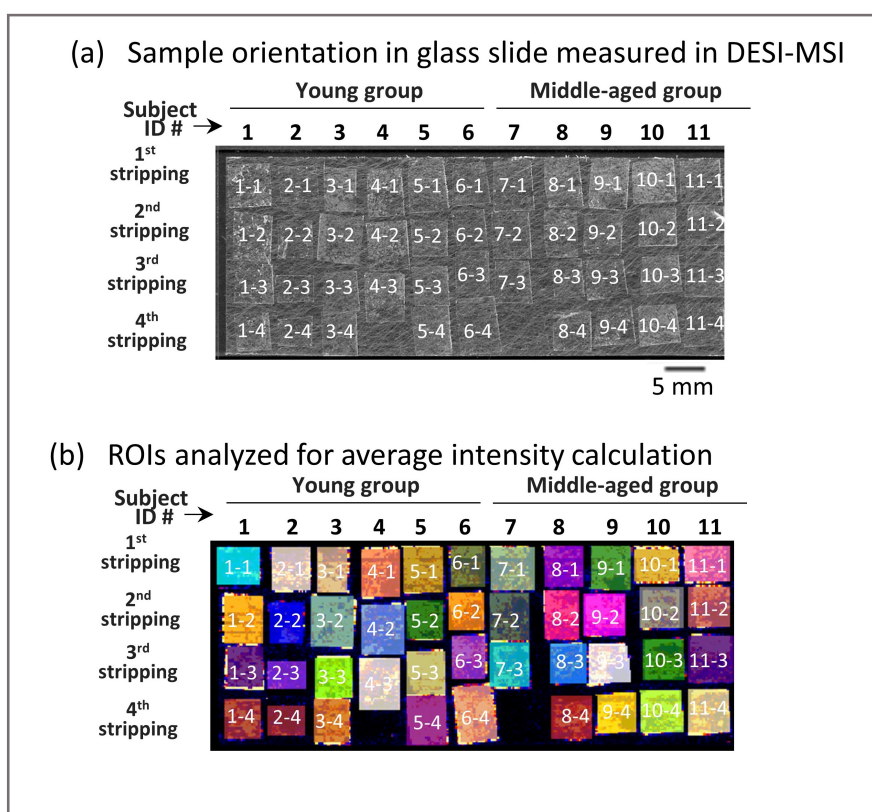


Fig. S1. ROIs drawn to measure average intensity. (a) sample orientation in glass slide measured in DESI-MSI. (b) ROIs drawn.

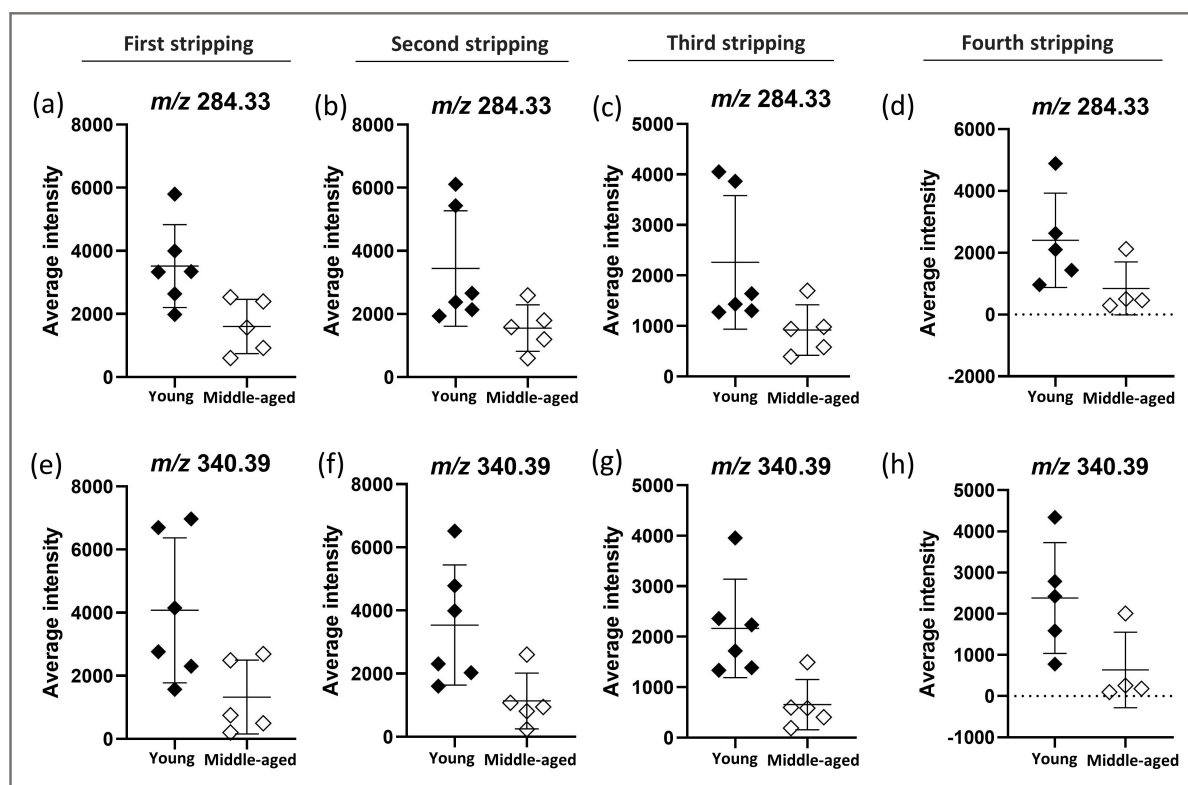


Fig. S2. m/z 284.33 and m/z 340.39 were prominently detected in each layer of all young subjects. All values are presented as mean \pm SD.

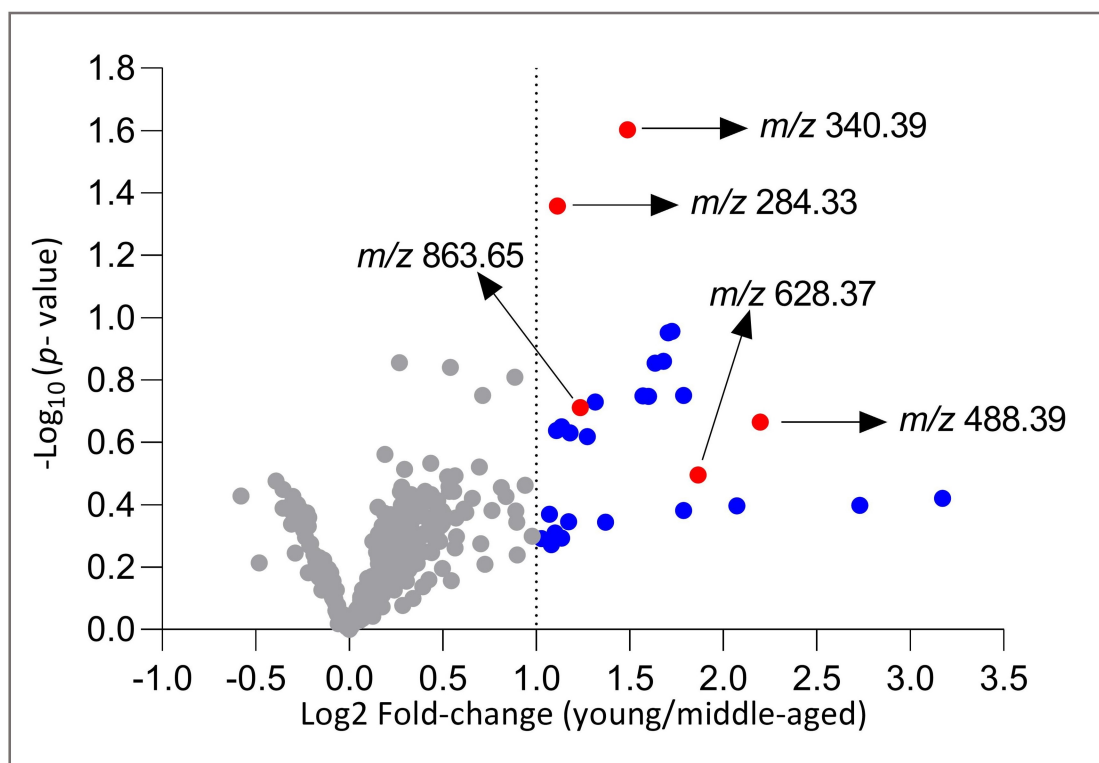


Fig. S3. Volcano plot compares the molecules from young and middle-aged subjects. Log₂ fold changes and their corresponding $-\text{Log}_{10} p$ -values of 300 most abundant molecules generated by HDImaging software were taken for construction of the volcano plot. Molecules increased more than 2-fold are depicted in blue dots, among them which molecules are detected in all samples and average intensity was higher in young groups are depicted in red dots. All other molecules are not found to be relevant to this study and depicted as gray dots. Student's unpaired two-tailed t -test was used for the volcano plot construction.

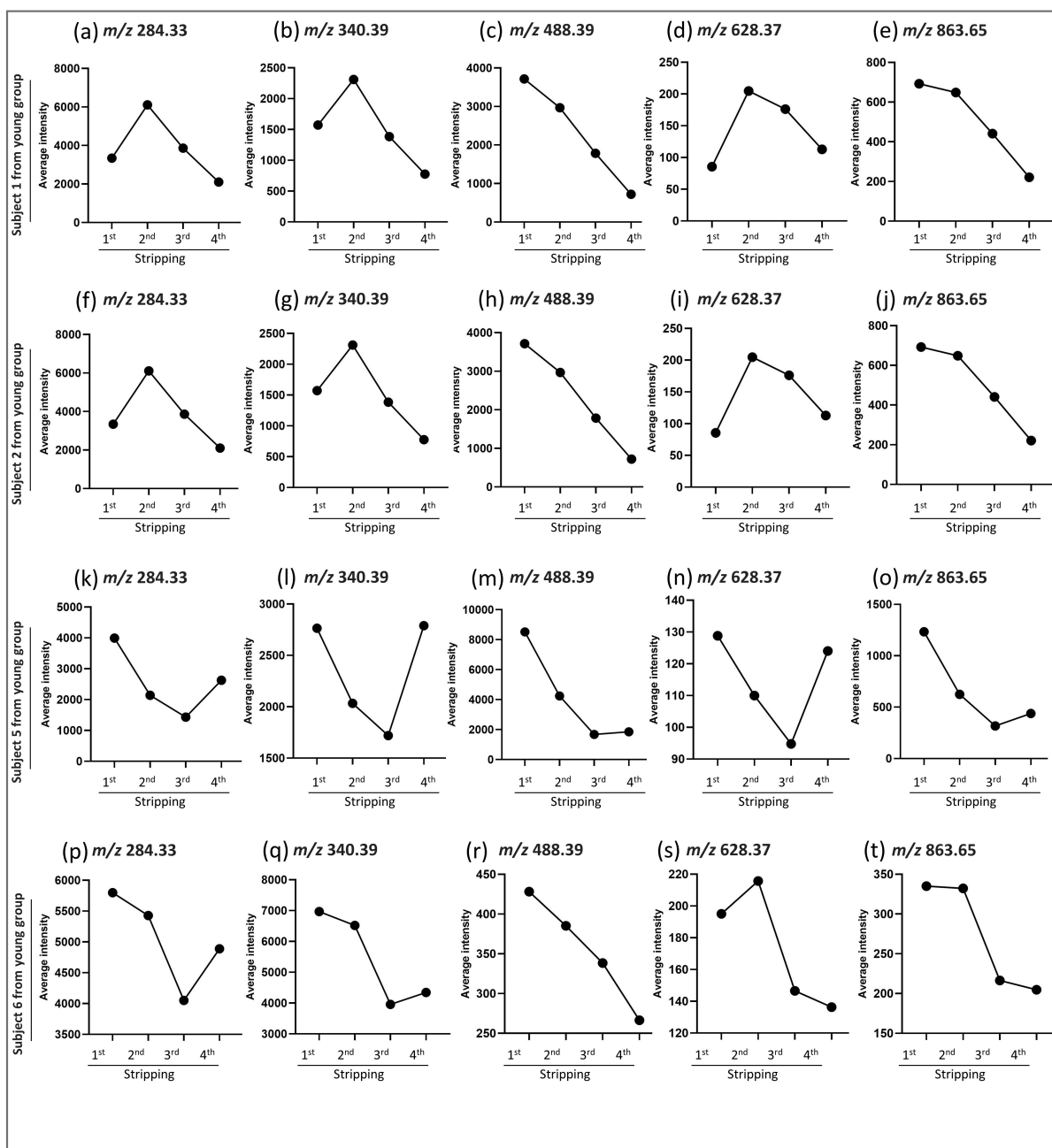


Fig. S4. Stratum corneum's layer-wise average intensity of the candidate molecules in subject 1, 2, 5 and 6 from young group. Average intensity of m/z 284.33 (a), m/z 340.39 (b), m/z 488.39 (c), m/z 628.37 (d), and m/z 863.65 (e) in young subject 1. Average intensity of m/z 284.33 (f), m/z 340.39 (g), m/z 488.39 (h), m/z 628.37 (i), and m/z 863.65 (j) in young subject 2. Average intensity of m/z 284.33 (k), m/z 340.39 (l), m/z 488.39 (m), m/z 628.37 (n), and m/z 863.65 (o) in young subject 5. Average intensity of m/z 284.33 (p), m/z 340.39 (q), m/z 488.39 (r), m/z 628.37 (s), and m/z 863.65 (t) in young subject 6.

Table S1. Constituents of the cleanser used for the face washing before stratum corneum sample collection.

Cleanser constituents
Water (aqua)
Mineral oil (paraffinum liquidum)
Butylene glycol
Glycerin
Alcohol
Polysorbate 80
Glyceryl stearate
Ascorbyl tetraisopalmitate
Lactobacillus/Soybean extract ferment filtrate
Tocopherol
Behenyl alcohol
Carbomer
Cetearyl alcohol
Dimethicone
Lauroyl lysine
PEG-20 glyceryl triisostearate
Potassium cocoyl glycinate
Potassium hydroxide
Silk powder (Serica powder)
Sodium lauroyl glutamate
Stearic acid
Ethylparaben
Methylparaben
Phenoxyethanol