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APPENDICES

Appendix A. The dilution list of the primers. Each primer was diluted using NFW with different concentrations depending on the primer itself.

Primer List		Primer Dilution	
		Molar (µM)	NFW Added (µL)
Filaggrin (FLG)	Forward	100 µM	177 µL
	Reverse	100 µM	278 µL
Involucrin (IVL)	Forward	100 µM	216 µL
	Reverse	100 µM	147 µL
Loricrin (LOR)	Forward	100 µM	222 µL
	Reverse	100 µM	208 µL
Transglutaminase-1 (TGM-1)	Forward	100 µM	234 µL
	Reverse	100 µM	227 µL
GAPDH (Housekeeping Gene)	Forward	100 µM	197 µL
	Reverse	100 µM	195 µL

Appendix B. The list of questions in the questionnaire for recruiting subjects.

Appendix B.1. The questionnaire was used to recruit subjects. Below is the main page of the google form. The subject is required to fill in their email address and phone number to ease the communication.

Form Perekrutan Penelitian "Skin Moisturizing and Barrier" Mahasiswa Biomedicine i3L

Halo, Bapak/Ibu/Saudara sekalian.

Perkenalkan kami adalah Chyntia Sherlyn Bunardi, Jessica Ferinstyadewi Gunawan, dan Nesya Ranita Karina. Kami adalah mahasiswa semester 7 di Universitas Indonesia International Institute for Life Sciences (i3L) jurusan Biomedicine. Saat ini, kami sedang mengerjakan tugas akhir kami di bawah bimbingan Bapak Richard Sutejo, S.T.P, Ph.D mengenai "Penelitian Pilot Study In Vivo untuk Mengevaluasi Efektivitas Pelembab Terhadap Skin Moisturizing dan Skin Barrier Melalui Ekspresi Genetik dan Komponen Penyusun" sebagai syarat untuk memperoleh gelar Sarjana.

Pengisian Google Form ini bertujuan sebagai form perekrutan untuk penelitian yang akan kami lakukan. Kami memerlukan subjek sehat berumur 20-30 tahun dengan kondisi kulit kering. Adapun peserta berdomisili di Jakarta atau sekitarnya, dan bersedia untuk melakukan pengambilan sampel di dua kota, Jakarta Timur dan Jakarta Barat.

Kami akan sangat menghargai jika Anda berkenan untuk mengisi formulir pendaftaran ini untuk membantu kami dalam mengerjakan tugas akhir kami. Jawaban Bapak/Ibu/Saudara akan kami perlakukan sesuai dengan standar profesionalitas dan etika penelitian. Kami mengharapkan Bapak/Ibu/Saudara menjawab pertanyaan kami dengan jujur dan tidak ada jawaban yang dikosongkan.

Apabila Bapak/Ibu/Saudara memiliki pertanyaan, silahkan hubungi kami melalui kontak Whatsapp: Jessica Gunawan (0838-1250-4938)

Terima kasih banyak atas bantuan Bapak/Ibu/Saudara sekalian!

Salam kami,
Chyntia, Jessica, dan Nesya

Email *

Valid email

This form is collecting emails. Change settings

No. HP *

Short answer text

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Appendix B.2. The second section of the google form. Here the subjects are required to fill in their biodata, including name, gender, age, etc.

Biodata Peserta Penelitian

Mohon mengisi biodata Bapak/Ibu/Saudara untuk pendataan kami.

Nama Anda *

Your answer

Jenis Kelamin *

○ Pria

○ Wanita

Usia *

Your answer

Domisili Anda *

○ Jakarta

○ Lainnya

Domisili Anda *

○ Jakarta

○ Lainnya

Tanggal Pengisian Form *

Date

⌄

Apakah Anda sudah di vaksin Covid-19? *

○ Belum sama sekali

○ Sudah, tetapi baru dosis pertama

○ Sudah divaksin hingga dose kedua

Apakah Anda bersedia melakukan pengambilan sampel di Jakarta Timur dan Jakarta Barat? *

○ Ya

○ Tidak

Appendix B.3. The third section of the questionnaire. In this section, the subject needs to answer questions related to their overall skin condition.

Bagian 1 - Kondisi Kulit Secara Keseluruhan

Pada bagian ini, Bapak/Ibu/Saudara akan menjawab pertanyaan seputar kulit secara keseluruhan guna mengetahui jenis kulit Bapak/Ibu/Saudara. Kemudian, pada bagian selanjutnya, Bapak/Ibu/Saudara akan diminta untuk mengisi jenis kulit Bapak/Ibu/Saudara berdasarkan jawaban Bapak/Ibu/Saudara sekalian pada bagian ini.

Apabila Bapak/Ibu/Saudara mayoritas menjawab opsi:
- A artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit kering
- B artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit normal
- C artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit berminyak
- D artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit kombinasi

Seperti apa tekstur kulit Anda setelah mencuci muka? *

○ Kasar dan ketat

○ Kenyal dan lembut

○ Sedikit berminyak

○ Berminyak pada sebagian area

Seberapa sering Anda mengalami breakout? *

○ Hampir tidak pernah

○ Jarang

○ Rutin

◉ Hanya di T zone

Seperti apa tekstur kulit Anda secara umum? *

○ Lembut dan transparan (terlihat pembuluh darah)

○ Kuat dan merata

○ Tidak rata dan sedikit kasar

○ Kombinasi semuanya

Seperti apa tekstur kulit Anda pada siang hari? *

○ Bersisik dan pecah-pecah

○ Bersih dan segar

○ Mengkilap di seluruh wajah

○ Mengkilap di T zone

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Appendix B.4. The fourth section of the questionnaire. Here the subject needs to conclude and answer the question about what their skin type is based on the previous section.

Kesimpulan Bagian 1

Pada bagian ini, Bapak/Ibu/Saudara akan diminta untuk mengisi kesimpulan jenis kulit Bapak/Ibu/Saudara berdasarkan jawaban Bapak/Ibu/Saudara sekalian pada Bagian 1.

Apabila Bapak/Ibu/Saudara mayoritas menjawab opsi:
- A artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit kering
- B artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit normal
- C artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit berminyak
- D artinya Bapak/Ibu/Saudara memiliki kecenderungan kulit kombinasi

Berdasarkan jawaban Anda pada Section 1, jenis kulit Anda adalah... *

○ Kulit kering

○ Kulit normal

○ Kulit berminyak

○ Kulit kombinasi

Appendix B.5. The fifth section of the questionnaire. Here the subjects need to answer questions specifically related to dry skin.

Bagian 2 - Kondisi Spesifik Kulit Kering

Pada bagian kedua ini, Bapak/Ibu/Saudara akan menjawab pertanyaan yang merupakan pertanyaan-pertanyaan spesifik mengenai kulit kering. Pertanyaan-pertanyaan dibawah ini diajukan guna menyaring seberapa keringnya kulit Bapak/Ibu/Saudara dan melihat adanya kemungkinan kulit kering Bapak/Ibu/Saudara yang disebabkan oleh kondisi genetik.

Apa kulit Anda terasa kencang seperti ditarik? *
- ○ Sangat kencang
- ○ Kencang
- ○ Sedikit kencang
- ○ Tidak terasa kencang

Apa kulit Anda terasa kering? *
- ○ Sangat kering
- ○ Kering
- ○ Sedikit kering
- ○ Tidak kering

Apa kulit Anda bersisik? *
- ○ Sangat bersisik
- ○ Bersisik
- ○ Sedikit bersisik
- ○ Tidak bersisik

Apa kulit Anda terasa kasar? *
- ○ Sangat kasar
- ○ Kasar
- ○ Sedikit kasar
- ○ Tidak kasar

Apa kulit Anda sering mengelupas? *
- ○ Selalu
- ○ Kadang
- ○ Jarang
- ○ Tidak pernah

Seberapa sering Anda merasa gatal pada area kulit? *
- ○ Selalu
- ○ Kadang
- ○ Jarang
- ○ Tidak pernah

Apakah kulit Anda pecah–pecah cukup dalam dan menyakitkan? *
- ○ Sangat pecah-pecah
- ○ Pecah-pecah
- ○ Sedikit pecah-pecah
- ○ Tidak pecah-pecah

Appendix B.6. The sixth section of the questionnaire. Here the subjects need to answer questions related to external factors that may influence their dry skin.

Bagian 3 - Faktor Eksternal

Pada bagian ketiga ini, Bapak/Ibu/Saudara sekalian akan menjawab pertanyaan seputar aktivitas dan produk-produk skin care dan body care yang Bapak/Ibu/Saudara gunakan sehari-hari guna mengetahui faktor eksternal yang berhubungan dengan kulit kering. Pertanyaan-pertanyaan berikut juga akan digunakan untuk menyaring kemungkinan adanya kondisi genetik yang mempengerahi jenis kulit Bapak/Ibu/Saudara sekalian.

Seberapa sering Anda menggunakan air panas ketika mandi? *

○ Selalu
○ Kadang-kadang
○ Jarang
○ Tidak pernah

Seberapa sering Anda terpapar sinar matahari? *

○ Selalu
○ Kadang-kadang
○ Jarang
○ Tidak pernah

Seberapa sering Anda berada di ruangan ber-AC? *

○ Selalu
○ Kadang-kadang
○ Jarang
○ Tidak pernah

Seberapa sering Anda menggunakan produk pelembab? *

○ Selalu
○ Kadang-kadang
○ Jarang
○ Tidak pernah

Produk sabun mandi apa yang sering Anda gunakan? *

Your answer

Apakah Anda melakukan hair removal dalam kurun waktu 30 hari (1 bulan)? *

☐ Tidak melakukan hair removal
☐ Waxing
☐ Laser
☐ Chemical peels
☐ Threading
☐ Lainnya (lihat pertanyaan berikutnya)

Jika Anda menjawab opsi 'Lainnya' pada pertanyaan sebelumnya, sebutkan metode hair removal yang Anda lakukan.

Your answer

Apakah Anda melakukan eksfoliasi dalam kurun waktu 30 hari (1 bulan)? *

☐ Tidak melakukan eksfoliasi
☐ Body Scrub/Face Scrub
☐ Loofah atau Spons
☐ Chemical Exfoliator
☐ Lainnya (lihat pertanyaan berikutnya)

Apakah Anda melakukan eksfoliasi dalam kurun waktu 30 hari (1 bulan)? *

☐ Tidak melakukan eksfoliasi
☐ Body Scrub/Face Scrub
☐ Loofah atau Spons
☐ Chemical Exfoliator
☐ Lainnya (lihat pertanyaan berikutnya)

Jika Anda menjawab opsi 'Lainnya' pada pertanyaan sebelumnya, sebutkan metode eksfoliasi yang Anda lakukan.

Your answer

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Appendix B.7. The seventh section of the questionnaire. The subjects were required to answer questions related to the internal factors that may influence their dry skin.

Bagian 4 - Faktor Internal

Pada bagian keempat ini, Bapak/Ibu/Saudara sekalian akan menjawab pertanyaan seputar masalah kulit dan alergi yang Bapak/Ibu/Saudara miliki. Pertanyaan berikut juga digunakan untuk menyaring kemungkinan kondisi genetik dan reaksi terhadap treatment yang akan kami gunakan pada penelitian ini.

Apa Anda memiliki masalah kulit? *

- [ ] Tidak memiliki masalah kulit
- [ ] Atopic dermatitis/eczema
- [ ] Ichthyosis vulgaris
- [ ] Rosacea
- [ ] Psoriasis
- [ ] Lainnya (lihat pertanyaan berikutnya)

Jika Anda menjawab opsi 'Lainnya' pada pertanyaan sebelumnya, sebutkan masalah kulit Anda.

Your answer

Apakah Anda memiliki alergi pada bahan kosmetik atau skin care tertentu? *

- ◯ Ya (lihat pertanyaan berikutnya)
- ◯ Tidak

Jika Anda menjawab opsi 'Ya' pada pertanyaan sebelumnya, sebutkan alergi Anda.

Your answer

Apakah Anda memiliki riwayat asthma atau alergi lainnya? *

- ◯ Ya (lihat pertanyaan berikutnya)
- ◯ Tidak

Jika Anda menjawab opsi 'Ya' pada pertanyaan sebelumnya, sebutkan riwayat alergi Anda.

Your answer

Apakah Anda sedang hamil? *

- ◯ Ya
- ◯ Tidak

Apakah Anda sedang menyusui? *

- ◯ Ya
- ◯ Tidak

Apakah Anda sedang mengkonsumsi obat-obatan tertentu? *

- ◯ Ya (lihat pertanyaan berikutnya)
- ◯ Tidak

Jika Anda menjawab opsi 'Ya' pada pertanyaan sebelumnya, sebutkan nama obat-obatan Anda.

Your answer

Apakah Anda mengkonsumsi makanan dengan tinggi lemak? *

- ◯ Ya (lihat pertanyaan berikutnya)
- ◯ Tidak

Jika Anda menjawab opsi 'Ya' pada pertanyaan sebelumnya, sebutkan jenis makanan yang Anda konsumsi dan seberapa sering Anda mengkonsumsi makanan tersebut dalam waktu 1 (satu) minggu.

Your answer

Appendix C. The raw data of water loss rate measurements for each subject. R indicates the right site as the treated area, while L indicates the left site as the untreated area. 0, 2, and 4 indicate the week of treatment. For instance, R0 indicates the right area on Week-0.

Appendix C.1. The raw data for water loss rate for subject F1.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	7.73	7.53	8.95	7.24	9.96	7.46
2	7.73	7.47	8.90	7.85	9.24	7.43
3	7.81	7.08	9.03	8.16	9.98	7.45
SITE B						
1	6.78	6.69	7.42	8.30	7.95	8.09
2	6.64	6.78	7.94	8.36	6.91	7.96
3	6.72	6.56	7.16	8.87	7.62	7.81
SITE C						
1	5.96	6.87	7.25	9.68	7.45	7.62
2	5.65	6.85	8.02	9.33	7.51	7.88
3	5.88	6.79	7.47	9.78	7.37	7.72

Appendix C.2. The raw data for water loss rate for subject F2.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	10.29	9.80	8.99	11.01	5.45	12.87
2	10.64	9.41	8.68	11.59	5.07	12.32
3	10.13	9.95	8.22	11.14	5.06	12.42
SITE B						
1	10.40	12.45	9.29	12.12	8.26	13.27
2	10.80	12.34	9.85	12.22	8.22	13.38
3	10.86	12.55	9.49	12.18	8.85	13.60
SITE C						
1	10.63	9.53	10.04	12.34	12.63	13.30
2	10.80	9.39	10.97	12.67	12.01	13.06
3	10.61	9.89	10.80	12.33	12.92	13.49

Appendix C.3. The raw data for water loss rate for subject F3.

Measurement	R0	L0	R4	L4
SITE A				
1	9.72	6.49	8.30	9.51
2	9.08	6.84	8.05	9.39
3	9.02	6.52	8.86	9.37
SITE B				
1	6.23	7.42	6.70	8.79
2	6.20	7.23	6.47	8.65
3	6.01	7.52	6.62	8.67
SITE C				
1	8.26	6.49	6.72	7.47
2	8.23	6.36	6.92	7.37
3	8.21	6.40	6.95	7.40

Appendix C.4. The raw data for water loss rate for subject F4.

Measurement	R0	L0	R2	L2	R4
SITE A					
1	8.06	6.78	7.65	8.29	6.22
2	7.92	6.16	7.64	8.36	6.88
3	8.73	6.61	7.52	8.20	6.70
SITE B					
1	8.99	6.39	7.50	9.08	6.56
2	8.20	6.27	7.14	8.29	6.37
3	7.86	6.95	6.38	8.37	6.33
SITE C					
1	8.08	7.19	5.92	7.91	6.62
2	7.45	6.58	5.73	7.03	6.44
3	7.64	6.21	5.87	7.45	6.91

Appendix C.5. The raw data for water loss rate for subject F5.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	9.44	10.53	9.90	8.72	8.63	7.33
2	9.41	10.93	9.97	8.70	8.16	7.72
3	9.24	10.88	9.64	8.67	8.31	7.40
SITE B						
1	10.34	8.10	8.33	8.36	8.39	10.01
2	10.27	8.16	8.97	8.37	8.49	10.60
3	10.09	8.93	8.53	8.47	8.43	10.19
SITE C						
1	8.42	9.37	8.48	7.98	7.40	8.08
2	9.61	9.45	8.80	7.97	7.52	8.17
3	9.17	9.78	8.95	8.08	7.50	7.97

Appendix C.6. The raw data for water loss rate for subject M1.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	6.64	6.79	6.60	7.57	8.45	7.66
2	7.80	6.63	6.67	7.40	8.94	7.86
3	7.46	7.39	6.90	7.96	7.85	8.12
SITE B						
1	6.11	7.19	7.98	7.84	7.39	7.61
2	6.91	7.37	7.73	7.46	7.45	7.21
3	6.58	7.24	7.47	7.28	7.68	7.89
SITE C						
1	5.44	5.86	7.51	6.32	7.77	5.70
2	5.60	5.93	7.55	6.38	8.07	5.64
3	6.31	5.90	7.72	6.12	8.38	5.27

Appendix C.7. The raw data for water loss rate for subject M2.

Measurement	R0	L0	R2	L2
SITE A				
1	8.22	7.23	6.13	9.30
2	8.81	7.44	6.20	9.24
3	8.49	7.42	6.12	9.23
SITE B				
1	5.53	6.37	5.65	7.98
2	5.08	6.87	5.40	7.79
3	5.66	6.63	5.61	7.67
SITE C				
1	6.90	6.69	7.27	6.53
2	7.08	6.29	7.41	6.51
3	6.63	6.42	7.52	6.67

Appendix D. The raw data of hydration level measurements for each subject. R indicates the right site as the treated area, while L indicates the left site as the untreated area. 0, 2, and 4 indicate the week of treatment. For instance, R0 indicates the right area on Week-0.

Appendix D.1. The raw data for hydration level for subject F1.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	21.70	21.80	45.90	22.90	40.50	25.40
2	21.40	22.30	46.30	23.30	40.60	26.40
3	22.60	22.30	46.60	22.00	40.00	26.90
SITE B						
1	21.70	24.00	42.90	20.60	39.80	22.20
2	21.90	23.60	42.70	20.70	40.30	22.60
3	21.20	25.50	42.00	21.50	40.30	22.60
SITE C						
1	21.40	21.40	45.50	22.60	40.50	20.30
2	21.80	22.90	45.60	21.80	40.30	20.50
3	22.00	21.90	44.40	22.20	41.90	21.10

Appendix D.2. The raw data for hydration level for subject F2.

Measurements	R0	L0	R2	L2	R4	L4
SITE A						
1	25.90	23.90	27.00	22.30	30.20	30.90
2	25.00	23.50	27.90	22.40	30.70	30.50
3	25.40	23.40	27.20	22.80	30.10	30.00
SITE B						
1	25.20	19.90	27.00	21.80	29.20	24.10
2	25.00	19.90	27.20	21.10	29.70	24.10
3	25.20	19.80	27.40	21.90	29.20	24.50
SITE C						
1	21.50	22.60	26.10	24.10	27.80	22.10
2	21.00	22.10	26.60	24.80	27.80	22.90
3	21.90	22.90	26.50	24.70	27.70	22.10

Appendix D.3. The raw data for hydration level for subject F3.

Measurement	R0	L0	R4	L4
SITE A				
1	33.20	33.20	52.70	25.60
2	33.60	33.90	52.50	25.10
3	33.70	33.80	52.50	25.40
SITE B				
1	28.60	25.10	49.00	20.50
2	28.50	25.60	49.10	20.20
3	28.40	25.80	49.80	20.30
SITE C				
1	23.20	23.70	49.10	16.60
2	23.20	23.40	49.50	16.40
3	23.20	23.90	49.00	16.30

Appendix D.4. The raw data for hydration level for subject F4.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	26.60	25.30	35.60	30.70	35.80	30.00
2	26.40	26.00	34.40	30.60	35.40	30.60
3	26.70	26.40	35.60	29.50	35.40	30.80
SITE B						
1	26.80	25.80	36.50	29.20	35.30	28.30
2	26.60	25.90	36.30	29.20	35.40	28.80
3	26.30	25.40	36.30	29.90	36.00	28.00
SITE C						
1	22.50	21.60	35.00	26.20	36.50	20.70
2	23.20	22.20	34.90	27.60	36.80	20.40
3	22.20	22.60	36.90	27.90	36.20	20.00

Appendix D.5. The raw data for hydration level for subject F5.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	25.60	27.40	42.70	28.50	55.50	23.20
2	25.30	27.50	43.80	28.80	55.90	23.50
3	25.00	27.90	43.30	28.50	55.90	23.70
SITE B						
1	25.70	26.60	40.30	26.90	50.40	16.50
2	25.60	26.90	40.50	26.60	50.00	16.00
3	25.50	26.30	40.90	26.80	50.80	16.20
SITE C						
1	25.20	26.70	46.20	22.20	38.00	16.30
2	25.80	26.40	46.20	21.90	38.20	16.10
3	25.70	26.30	45.80	22.00	37.90	16.40

Appendix D.6. The raw data for hydration level for subject M1.

Measurement	R0	L0	R2	L2	R4	L4
SITE A						
1	28.20	26.20	34.10	27.60	41.90	27.80
2	29.50	27.10	34.80	27.80	41.10	27.30
3	29.30	26.90	35.40	27.10	41.80	27.50
SITE B						
1	28.20	18.10	37.10	22.30	45.90	26.50
2	28.70	18.90	36.70	21.00	45.90	26.40
3	27.40	19.50	37.20	22.60	46.10	26.50
SITE C						
1	25.60	21.70	41.70	21.40	45.40	27.90
2	26.20	21.90	41.10	22.00	45.00	27.70
3	26.20	22.30	41.50	22.00	45.50	27.40

Appendix D.7. The raw data for hydration level for subject M2.

Measurement	R0	L0	R2	L2
SITE A				
1	31.00	35.00	46.30	30.50
2	30.90	35.40	46.40	30.80
3	30.90	35.70	46.70	30.80
SITE B				
1	32.20	36.40	39.30	25.30
2	32.20	36.90	39.70	25.30
3	32.40	36.90	39.50	25.70
SITE C				
1	32.40	35.10	38.20	27.00
2	32.50	35.80	38.00	27.00
3	32.60	35.30	38.20	27.10

Appendix E. The raw data of the percentage rise of the instrumental analysis on both areas.

Appendix E.1. The raw data of the percentage rise for hydration level.

Subject	Untreated Area		Treated Area	
	Week 2	Week 4	Week 2	Week 4
F1	0.03	0.19	1.11	0.84
	-0.16	-0.11	0.98	0.90
	0.01	-0.04	1.02	0.90
F2	-0.05	0.29	0.08	0.11
	0.11	0.24	0.09	0.07
	0.08	-0.03	0.21	0.05
F3	■	-0.25	■	0.57
	■	-0.21	■	0.75
	■	-0.20	■	1.11
F4	0.17	0.18	0.31	0.01
	0.18	0.10	0.38	0.38
	0.23	-0.12	0.66	-0.02
F5	0.04	-0.15	0.71	0.29
	0.02	-0.38	0.60	0.24
	-0.16	-0.38	0.78	-0.17
M1	0.03	0.03	0.20	0.44
	0.16	0.36	0.36	0.68
	-0.01	0.23	0.58	0.74
M2	-0.13	■	0.50	■
	-0.30	■	0.22	■
	-0.23	■	0.17	■

Appendix E.2. The raw data of the percentage rise for water loss rate.

Subject	Untreated		Treated	
	Week 2	Week 4	Week 2	Week 4
F1	0.05	0.01	0.16	0.25
	0.35	0.19	0.07	0.13
	0.44	0.14	0.27	0.25
F2	0.16	0.29	-0.17	-0.50
	-0.03	0.08	-0.13	-0.19
	0.25	0.36	0.02	0.22
F3	■	0.43	■	-0.09
	■	0.15	■	0.10
	■	0.16	■	-0.15
F4	0.27	0.26	-0.07	-0.20
	0.20	0.26	-0.19	-0.19
	0.20	0.20	-0.23	-0.10
F5	-0.19	-0.31	0.05	-0.11
	-0.05	0.14	-0.15	-0.16
	-0.17	-0.19	-0.02	-0.18
M1	0.10	0.14	-0.08	0.16
	0.04	0.09	0.14	0.17
	0.04	-0.11	0.22	0.33
M2	0.26	■	-0.28	■
	0.16	■	-0.01	■
	0.04	■	0.13	■

Appendix F. The results of repeated measures ANOVA for the water loss rate measurement.

Repeated Measures ANOVA ▼

Within Subjects Effects ▼

Cases	Sum of Squares	df	Mean Square	F	p
Treatment	0.166	1	0.166	2.893	0.111
Residuals	0.805	14	0.058		
Week	9.600e−4	1	9.600e−4	0.103	0.753
Residuals	0.130	14	0.009		
Treatment ✳ Week	5.400e−4	1	5.400e−4	0.030	0.864
Residuals	0.250	14	0.018		

Note. Type III Sum of Squares

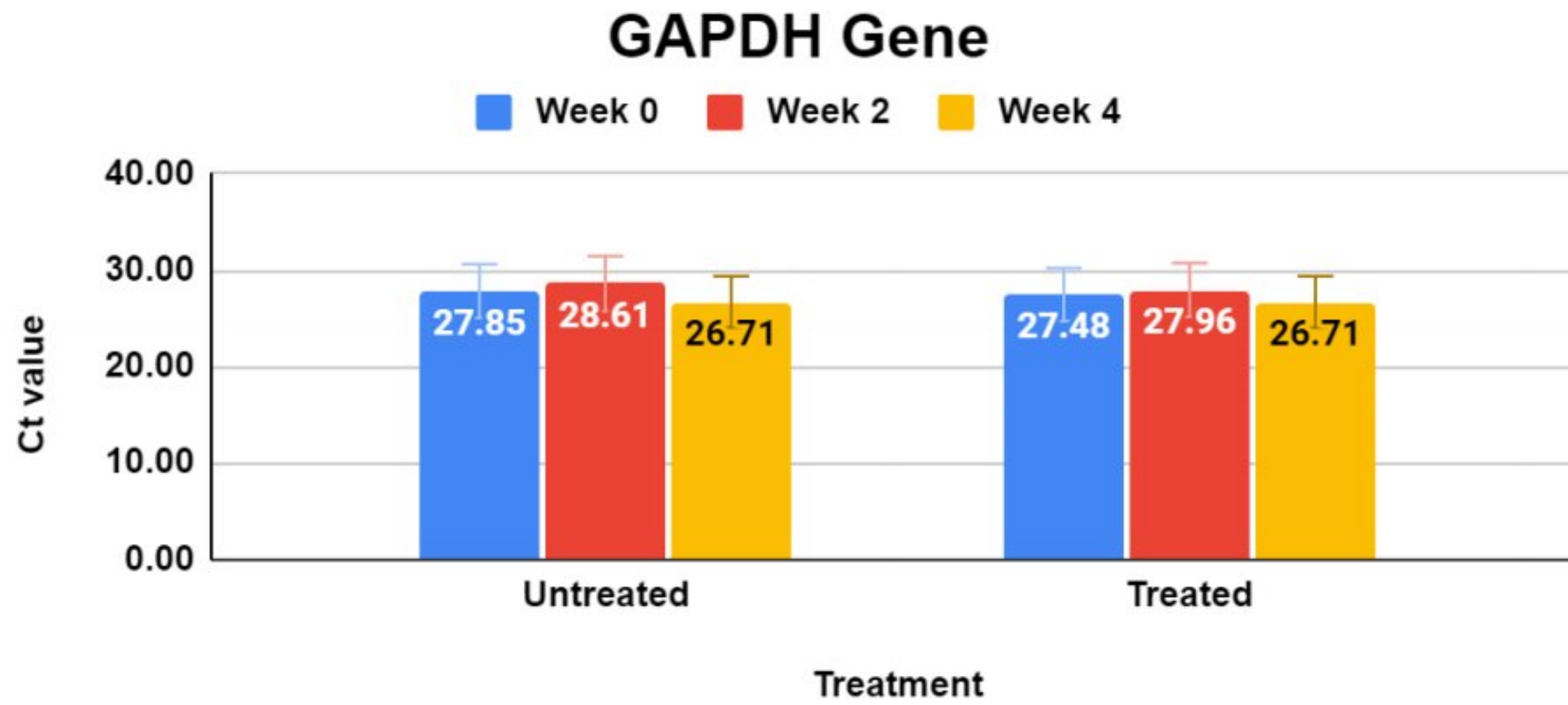**Appendix G. The results of repeated measures ANOVA for the hydration level measurement.**

Repeated Measures ANOVA ▼

Within Subjects Effects ▼

Cases	Sum of Squares	df	Mean Square	F	p
Treatment	1.320	1	1.320	27.352	< .001
Residuals	0.676	14	0.048		
Week	0.993	1	0.993	16.360	0.001
Residuals	0.850	14	0.061		
Treatment ✳ Week	0.580	1	0.580	8.832	0.010
Residuals	0.920	14	0.066		

Note. Type III Sum of Squares

Appendix H. The *GAPDH* qRT-PCR results.

GAPDH Gene

Appendix I. The results for the purity test of all subjects. The results for purity testing become the parameter on which sample should be continued to the qRT-PCR. In this study, the sample for subject F1 and F5 was not loaded into the PCR analysis due to having a very low value.

Subject	Week 0		Week 2		Week 4	
	T	U	T	U	T	U
F1	0.42	0.66	0.44	0.19	0.92	1.04
	0.52	0.70	0.49	0.20	0.96	1.07
F2	1.95	2.97	2.76	2.49	3.08	2.76
	1.96	2.98	2.60	2.46	3.07	2.78
F3	2.01	2.56			1.97	2.12
	2.01	2.56			1.98	2.12
F4	2.10	2.59	2.00	2.23	2.15	1.99
	2.11	2.60	2.01	2.24	2.14	2.00
F5	1.12	1.56	1.00	0.68	0.86	1.03
	1.26	1.50	0.96	0.62	0.85	1.18
M1	2.06	2.17	2.13	2.00	1.95	1.93
	2.07	2.17	2.14	2.01	1.96	1.93
M2	2.78	2.59	2.27	3.11		
	2.79	2.60	2.28	3.11		

Appendix J. The normality test results using Shapiro-Wilk Test for water loss rate results.

Appendix J.1. The results for water loss rate on Site A.

Normality and Lognormality Tests Tabular results	A Week 0-2	B Week 0-4
Shapiro-Wilk test		
W	0.9520	0.9641
P value	0.6670	0.8405
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns

Appendix J.2. The results for water loss rate on Site B.

Normality and Lognormality Tests Tabular results	A Week 0-2	B Week 0-4
Shapiro-Wilk test		
W	0.9838	0.9113
P value	0.9946	0.2214
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns

Appendix J.3. The results for water loss rate on Site C.

Normality and Lognormality Tests Tabular results	A Week 0-2	B Week 0-4
Shapiro-Wilk test		
W	0.9738	0.8754
P value	0.9459	0.0766
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns

Appendix K. The normality test results using Shapiro-Wilk Test for hydration level results.

Appendix K.1. The results for hydration level on Site A.

Normality and Lognormality Tests Tabular results	A	B
	Week 0-2	Week 0-4
Shapiro-Wilk test		
W	0.9185	0.9739
P value	0.2739	0.9475
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns

Appendix K.2. The results for hydration level on Site B.

Normality and Lognormality Tests Tabular results	A	B
	Week 0-2	Week 0-4
Shapiro-Wilk test		
W	0.9485	0.9733
P value	0.6155	0.9420
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns

Appendix K.3. The results for hydration level on Site C.

Normality and Lognormality Tests Tabular results	A	B
	Week 0-2	Week 0-4
Shapiro-Wilk test		
W	0.9322	0.8891
P value	0.4043	0.1146
Passed normality test (alpha=0.05)?	Yes	Yes
P value summary	ns	ns