



MULTIDIRECTIONAL ACTIVITY OF BAKUCHIOL AGAINST FACIAL AGING

COMPARISON TO RETINOL

Dr. Anika Blümke, 29th of November 2022

Beiersdorf

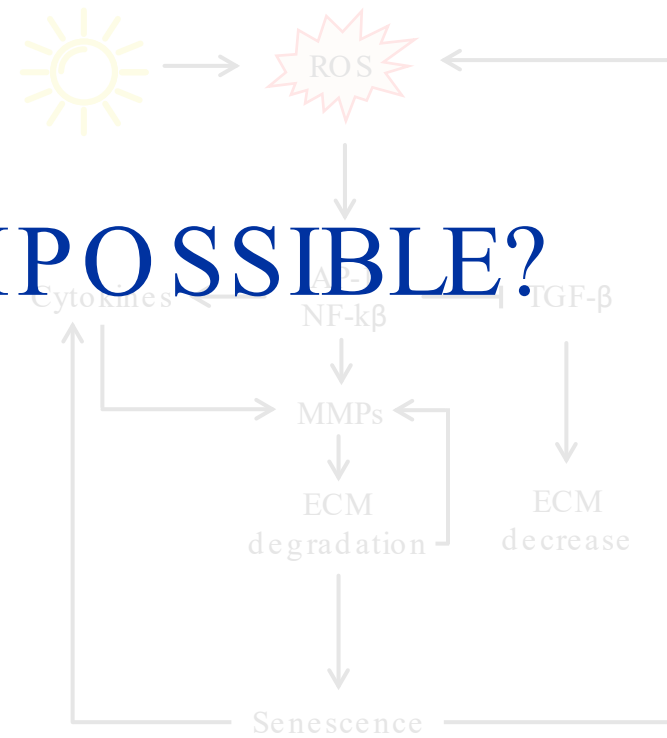


> 300 AGING THEORIES

FACIAL AGING



MISSION IMPOSSIBLE?



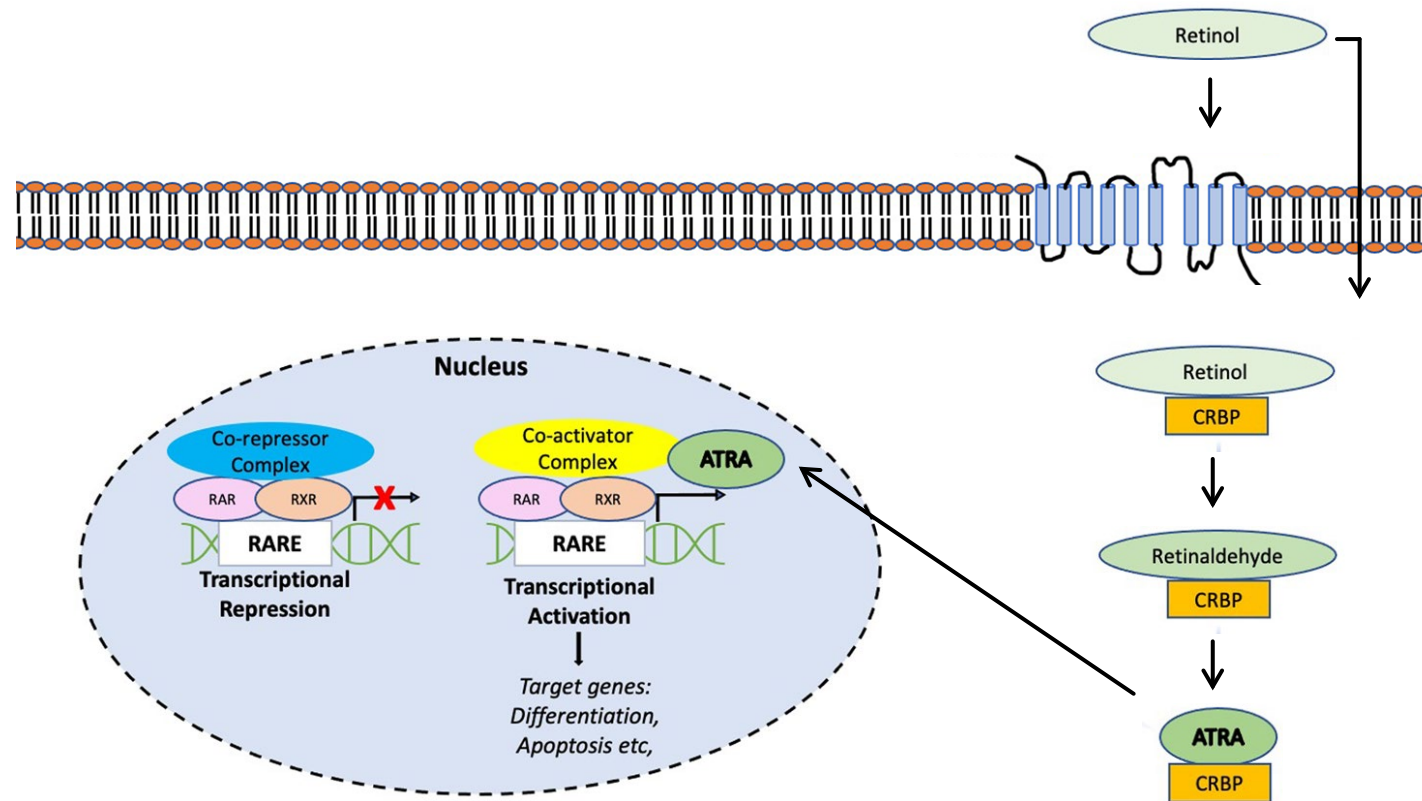


3 % RETINOL

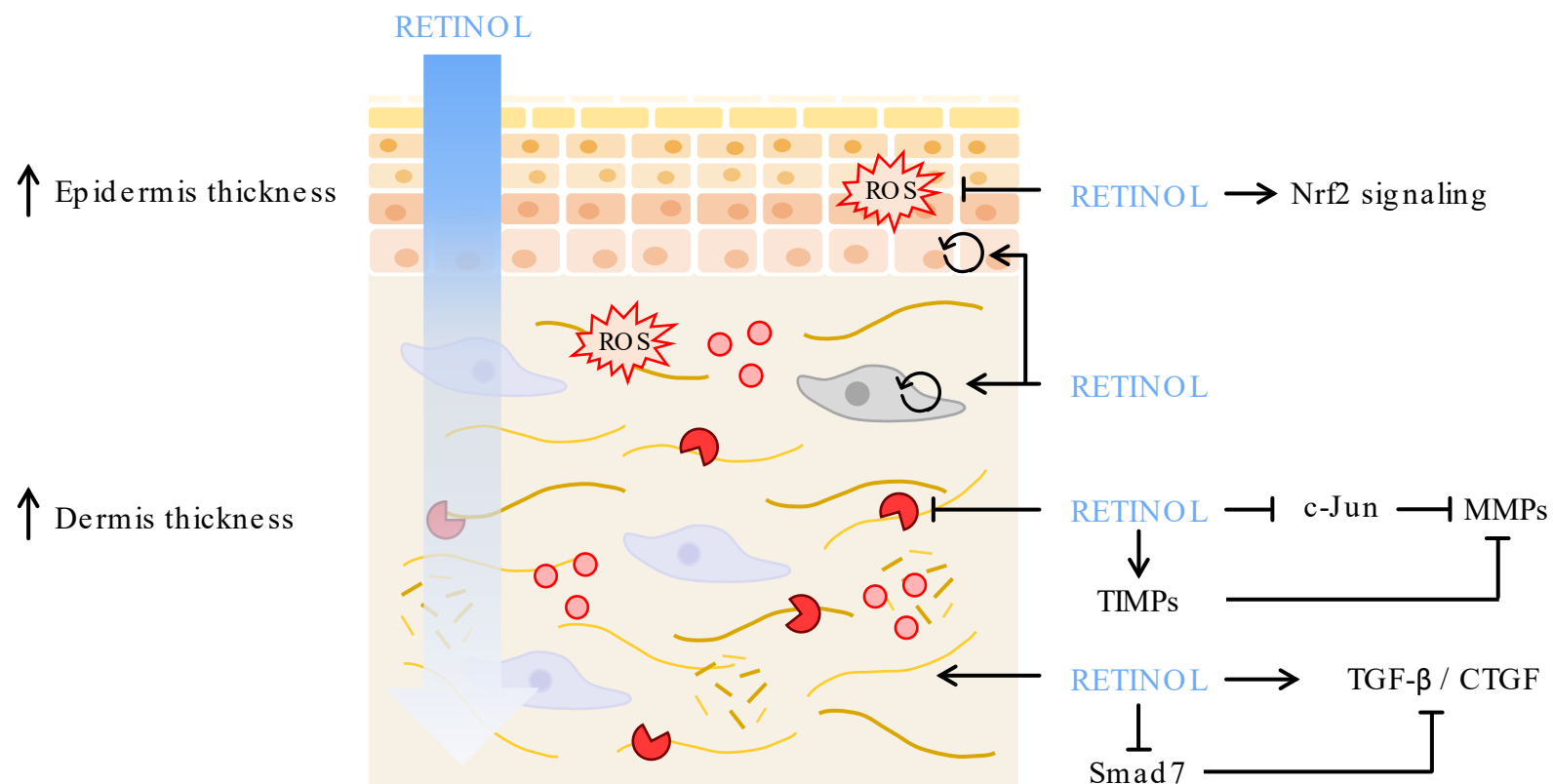


-25% fine wrinkles

RETINOL SIGNALING



RETINOL EFFECT ON SKIN AGING



Szymański et al. (2020), Cells, 9(12):2660

Shao et al. (2017), Int J Cosmet Sci., 39(1): 56-65

Kong et al. (2016), J Cosmet Dermatol, 15(1):49-57

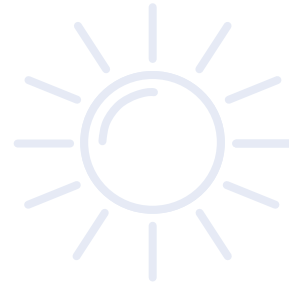
Zasada and Budzisz (2019), Postepy dermatologii i alergologii, 36,4 : 392-397

RETINOL LIMITATIONS



Side effects
Erythema
Itching
Desquamation
Papules

Kang et al. (1995), *J Invest Dermatol.*, 105:549-56
Fluhr et al. (1999), *Dermatology*, 199(Suppl11):57-60



Light sensitivity
Unstability
UV sensitization

Mukherjee et al. (2006), *Clin Interv Aging.*, 1:327-48



Use in pregnancy
“as a precaution, they
(retinoids) must not be used
during pregnancy” (EMA)

Bozzo et al. (2011), *Can Fam Physician.*, 57(6):665-667

BAKUCHIOL



SYTHEON
...making innovation work

Anti-oxidant

Haraguchi et al. (2000), *Planta Med.*, 66:569–71

Adhikari et al. (2003), *Chem Res Toxicol.*, 16:1062–9

Anti-inflammatory

Backhouse et al. (2001), *J Ethnopharmacol.*, 78:27–31

Pae et al. (2001), *Int Immunopharmacol.*, 1:1849–55

Matsuda et al. (2009), *Biol Pharm Bull.*, 32:147–9

Anti-bacterial

Katsura et al. (2001), *Antimicrob Agents Chemother.*, 45:3009–13

Well tolerated

Draelos et al. (2020), *J Drugs Dermatol.*, 19:1181–3

Improves cutaneous photodamage

Dhaliwal et al. (2019), *Br J Dermatol.*, 180(2):289–96

BAKUCHIOL VS. RETINOL

Dhaliwal et al. (2019)

Chaudhuri & Bojanowski (2014)

Type In vivo study

Type In vitro study (EpiDerm FT)

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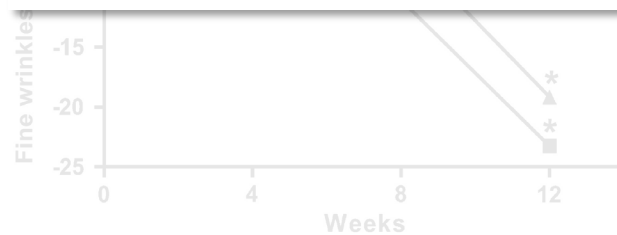
COSMETIC COMMENTARY



WILEY

Cosmetic commentary: Is bakuchiol the new "skincare hero"?

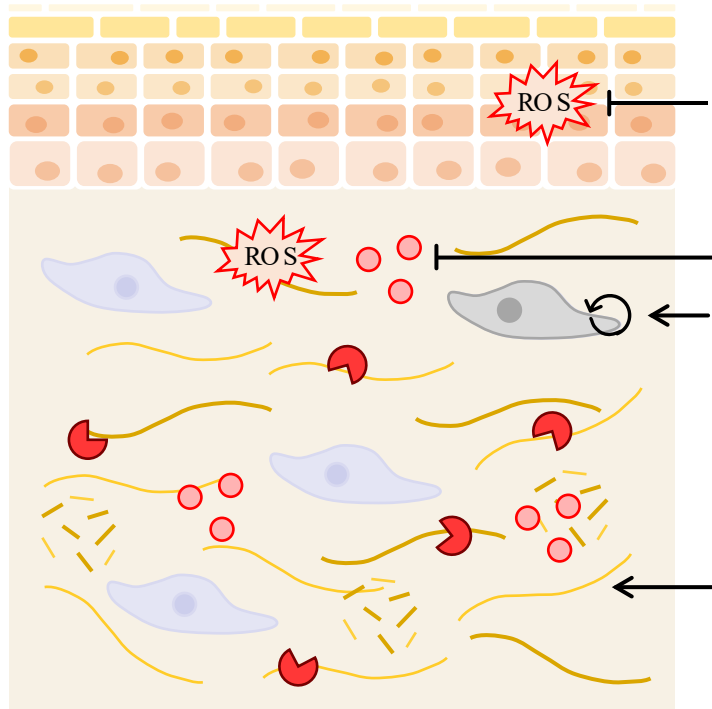
Natalia M. K. Spierings BSc, (Hons), MBBS, MRCP, (UK), MRCP, (Derm), MBA, Msc^{1,2}



ECM components

Gene	Retinol	Bakuchiol
COL1A2	↑	↑
OL4A6	↑	↑
COL9A2	↑	↑

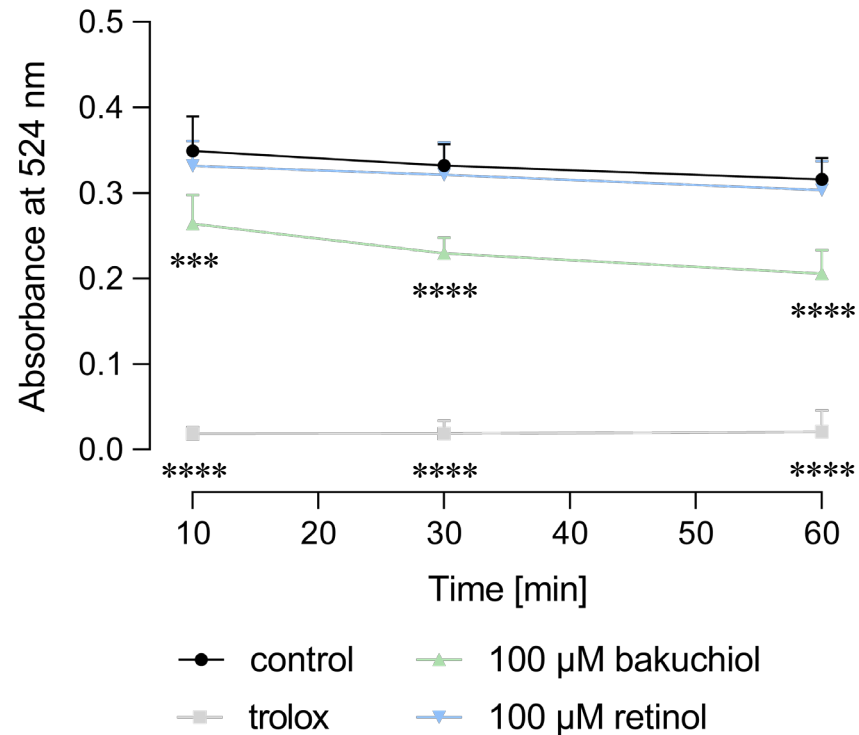
OUR APPROACH



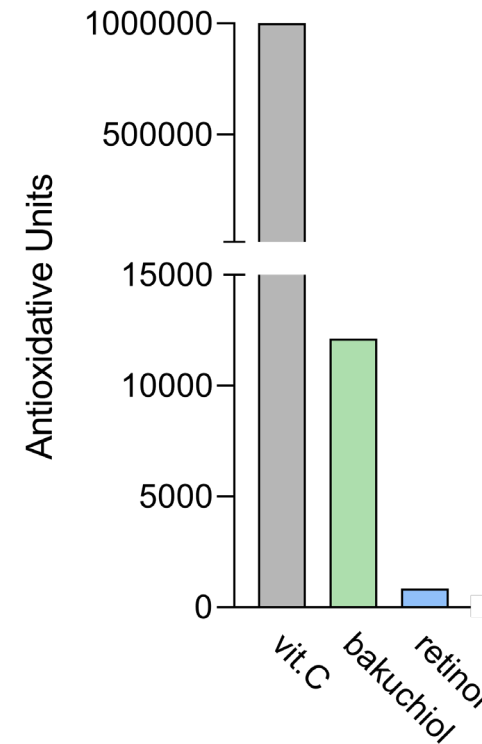
- (i) Anti-oxidative capacity
- (ii) Anti-inflammatory capacity
- (iii) Cell activity
- (iv) ECM components
- (v) Epidermal regeneration

(I) ANTI-OXIDATIVE CAPACITY

DPPH absorption decay

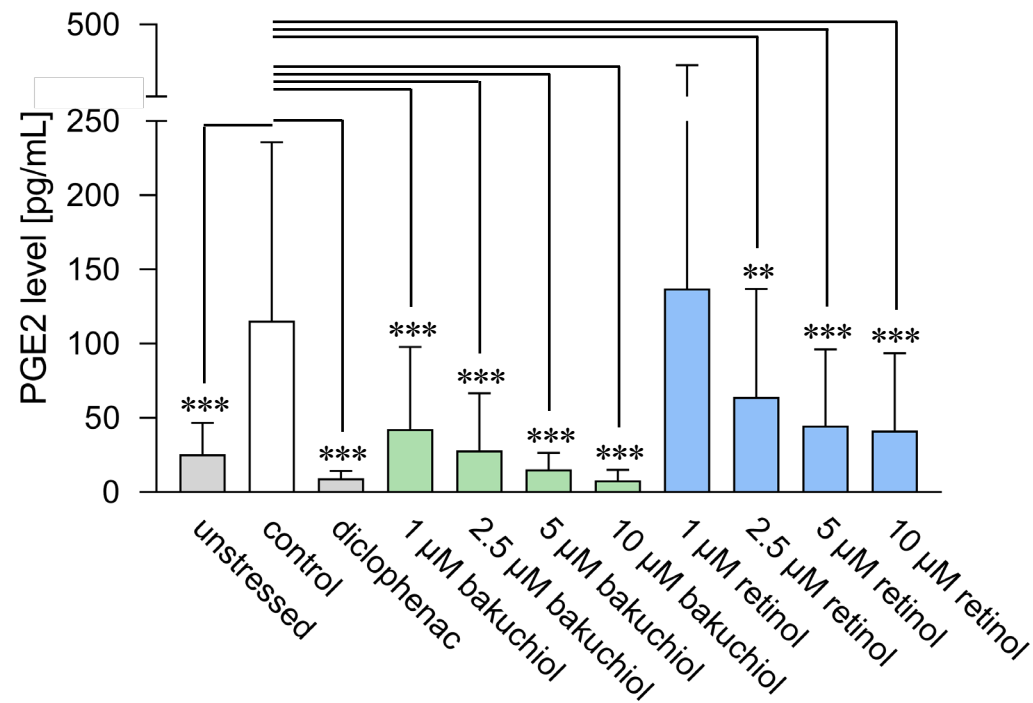


DPPH-based ESR

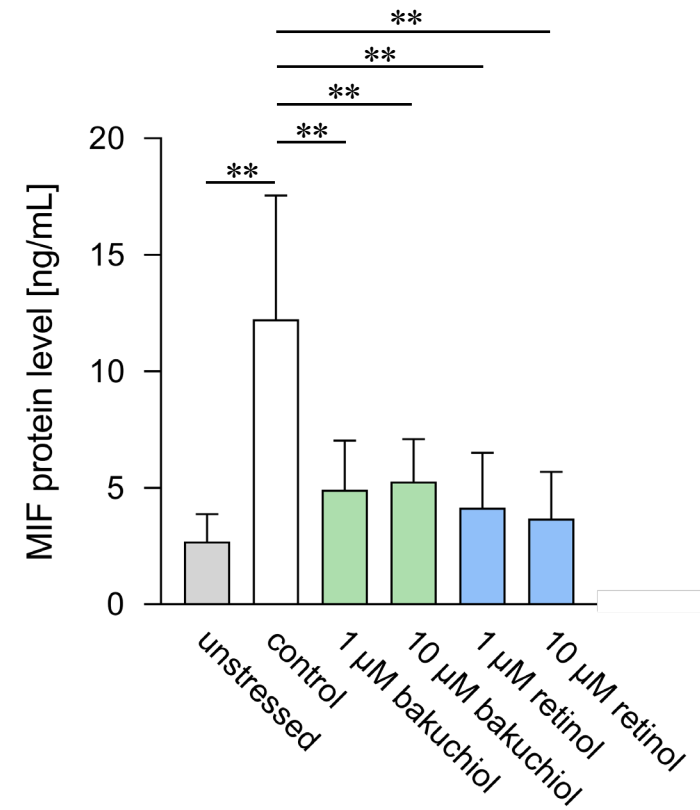


(II) ANTI-INFLAMMATORY CAPACITY

Prostaglandin E2

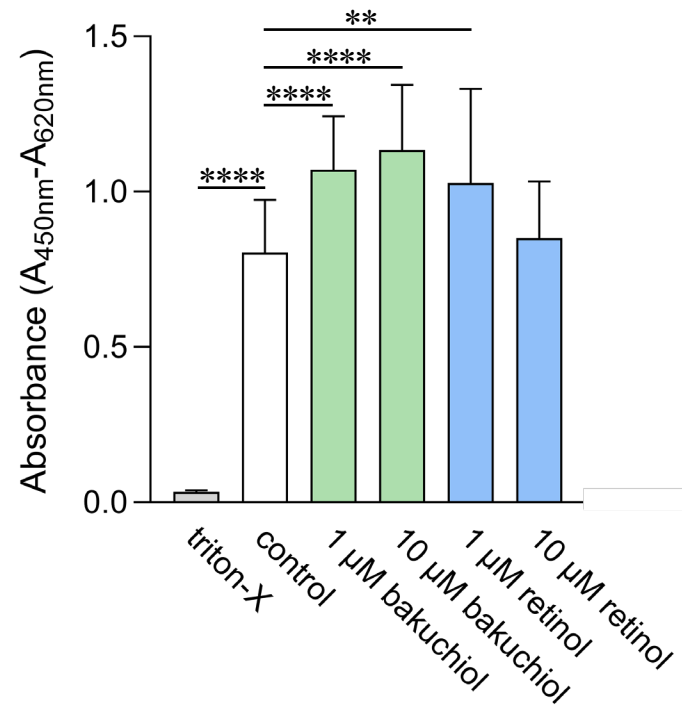


Macrophage migration inhibitory factor

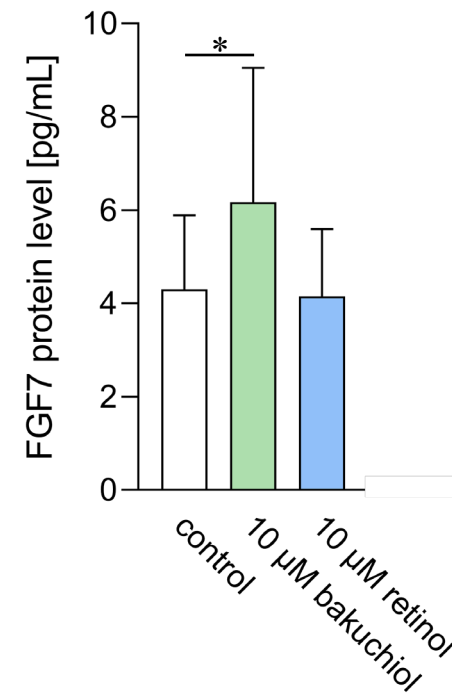


(III) CELL ACTIVITY

Cell metabolic activity

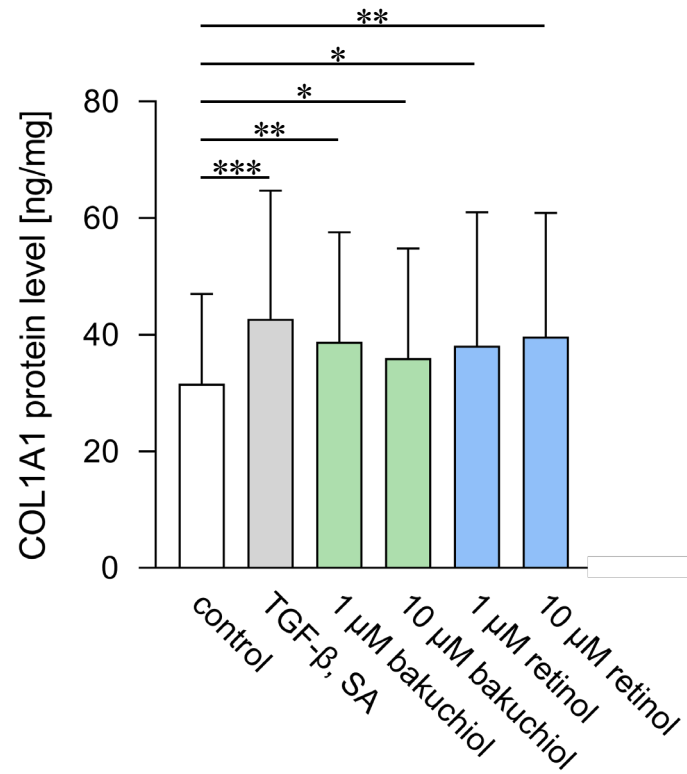


Keratinocyte growth factor

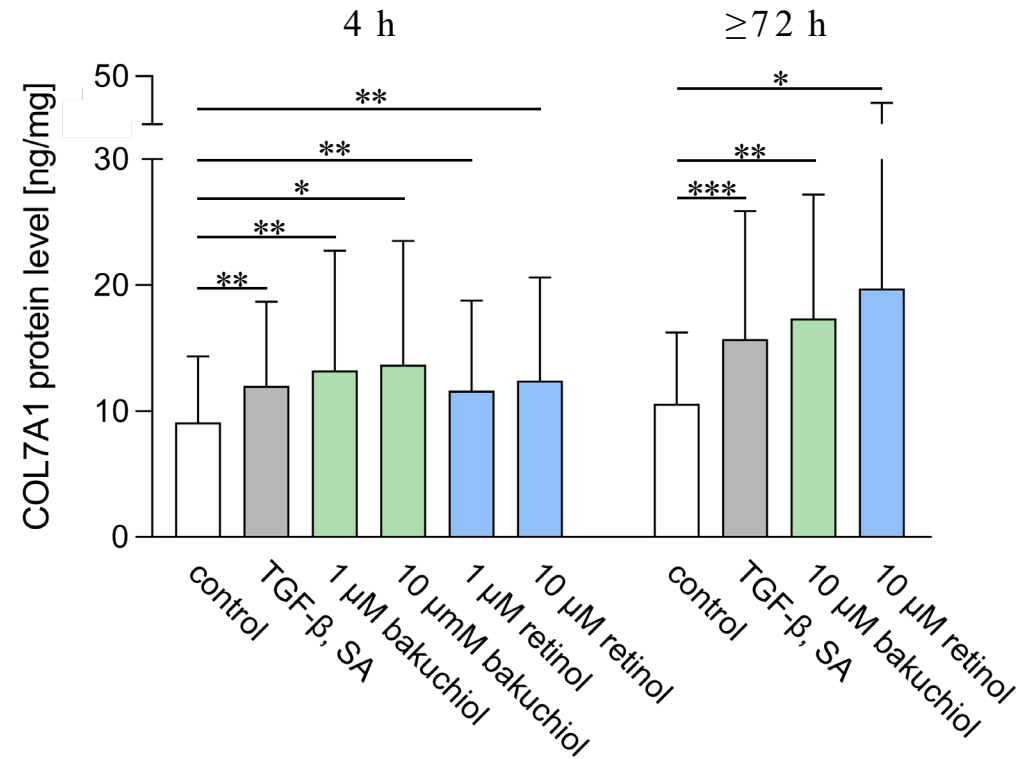


(IV) ECM COMPONENTS

Collagen type I

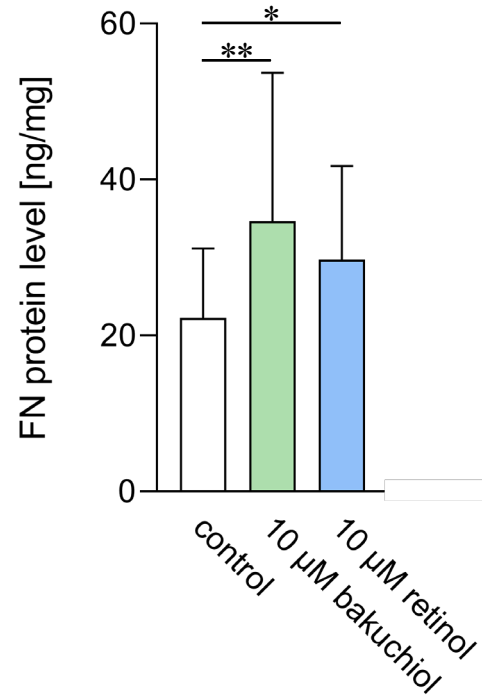


Collagen type VII

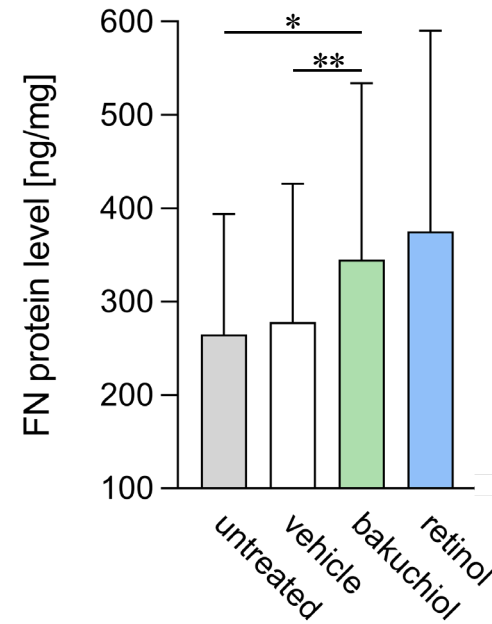


(IV) ECM COMPONENTS

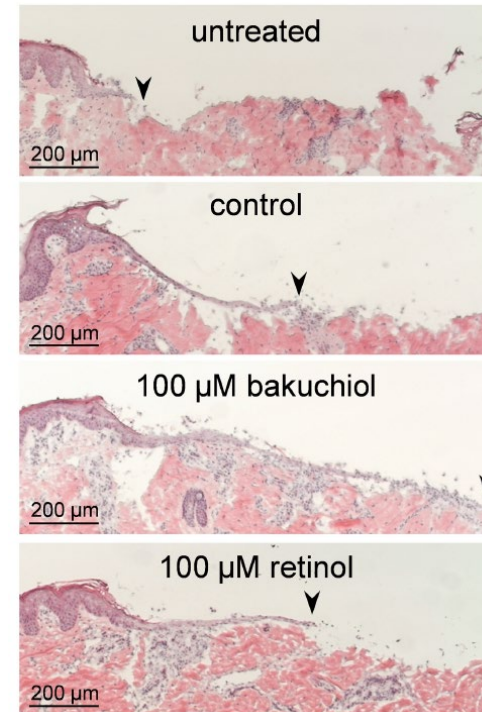
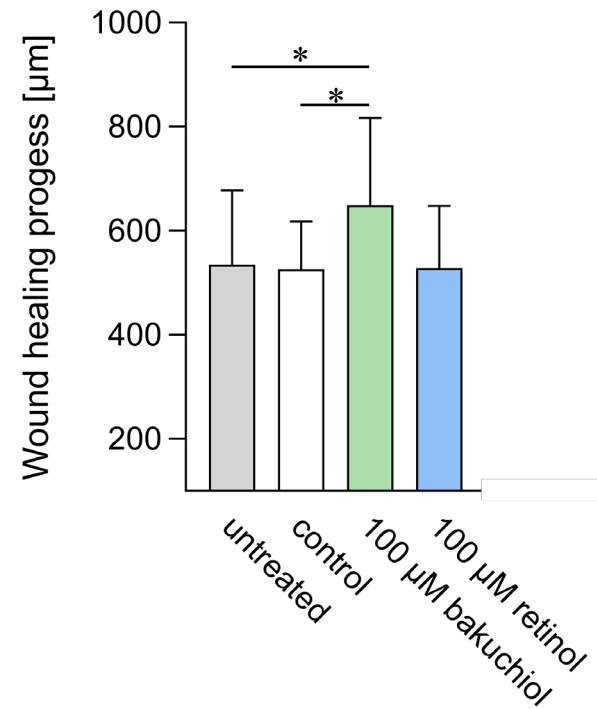
Fibronectin



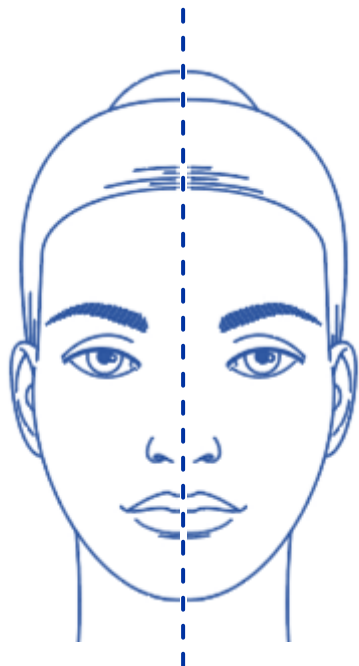
Fibronectin ex vivo



(V) EPIDERMAL REGENERATION



SKIN APPEARANCE

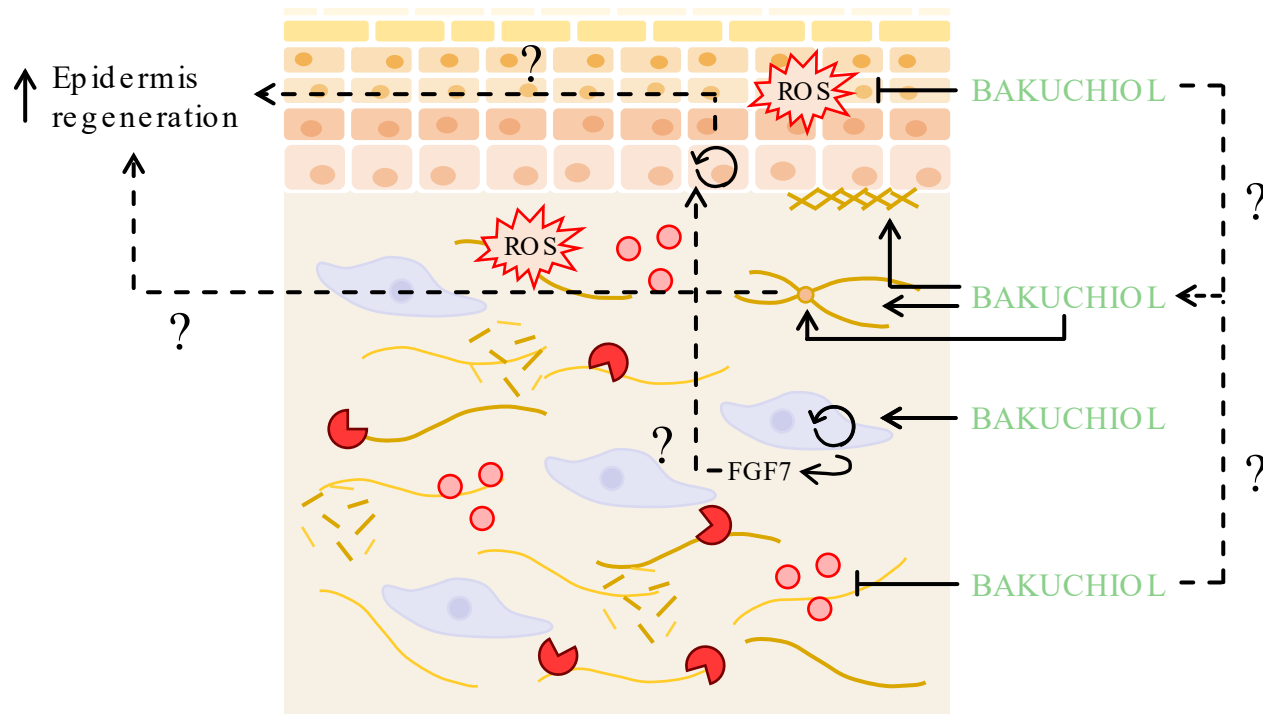


Study type	In vivo study
Area	Split-face
Treatment	Vehicle 0.5% bakuchiol
Details	n = 34, 12-week
Analysis	Self-grading

Youthful skin appearance
(score 1-10)

	VEHICLE	BAKUCHIOL
t_1-t_0	2.06 ± 1.89	2.57 ± 2.14
p value	0.0275	

DATA SUMMARY



	RETINOL	BAKUCHIOL
In vitro		
Oxidative stress	-	+
Inflammation	+	+
Met. activity	+	+
FGF7	-	+
Collagen type I	+	+
Collagen type VII	+	+
Fibronectin	+	+
Epidermal reg.	-	+
In vivo		
Fibronectin	-	+
Self-grading	/	+

THANK YOU

Beiersdorf

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Jeannine Immeyer

Annika Ring

& many more ...

Development department

Consumer & clinical science

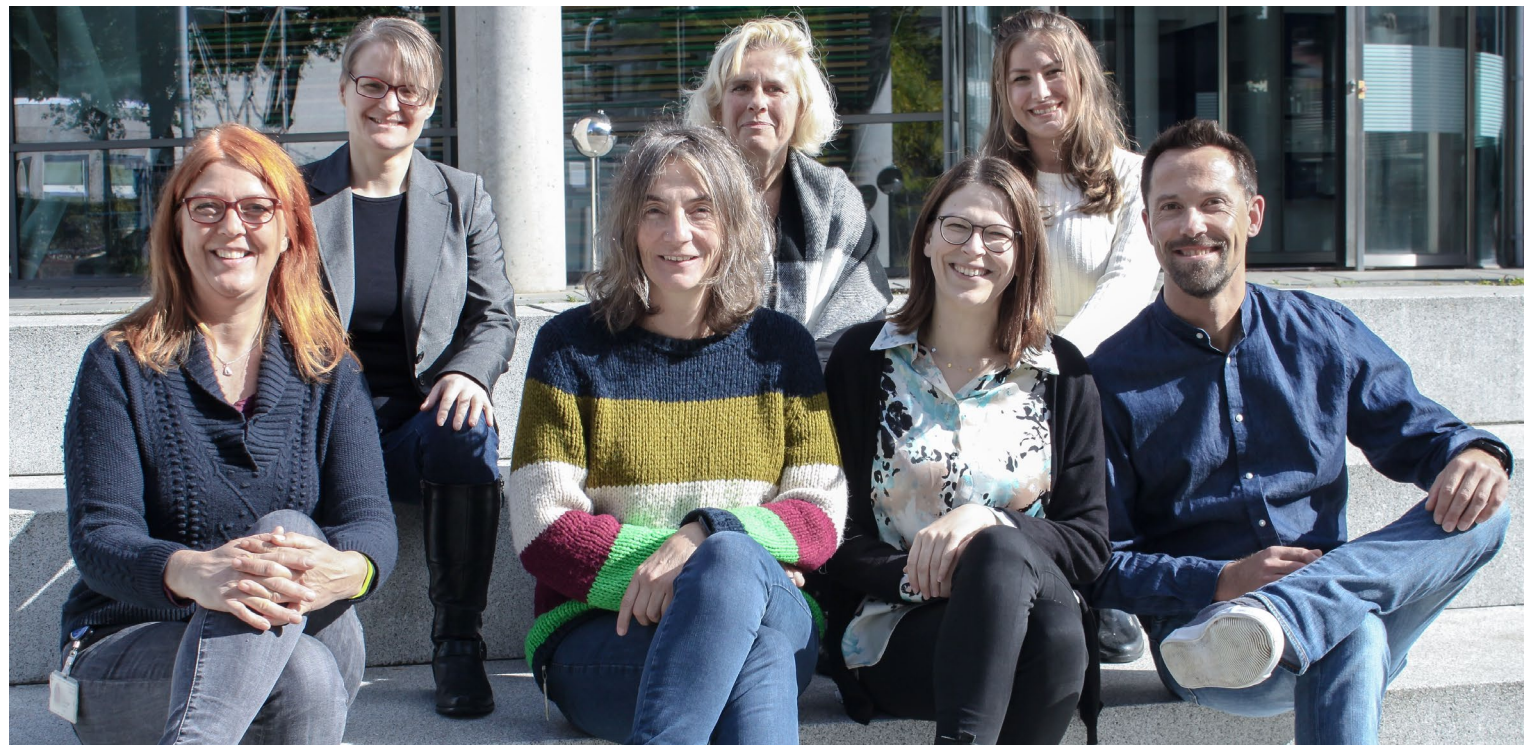
test center

Toxicology department

Analytics department

Raw material management

Category Face



Universitätsklinikum
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Prof. Brandner



INSTITUT
FRESENIUS

Dörte Segger



Dr. Grit Sandig
Marietta Seifert





THANK YOU

Beiersdorf