

**Evaluation of the activity laser doses and a reference
on hair growth stimulation on isolated hair**

STUDY 09E1752

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AIM OF THE STUDY

The aim of this study is to compare 2 laser doses and one reference on the hair growth of isolated hairs maintained in survival.

METHODS

1. Lasers tested

A reference: HairMax LaserComb

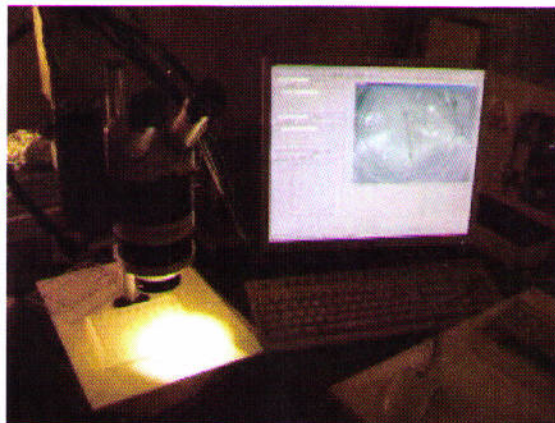
A prototype: Lexington 635 nm project 020609

2. Biological model

On a scalp plasty coming from a 58-year-old man, 87 hairs and their bulb were isolated by microdissection. These hairs were placed in 48-well plates and kept in survival in classical cell culture conditions: Philpott medium, at 37°C in a 5 %-CO₂ atmosphere.

3. Growth measurement and hair selection

On the day the hairs were isolated (D -4), each hair was cut about 1 mm above the infundibulum, and a picture was taken. The length of each hair was measured from the bulb to the hair tip using the measurement module of the Olympus Cell^P software. On day 0, day 3, day 7 and day 10 the measurement process was repeated. Thus, the growth of each hair was followed individually.

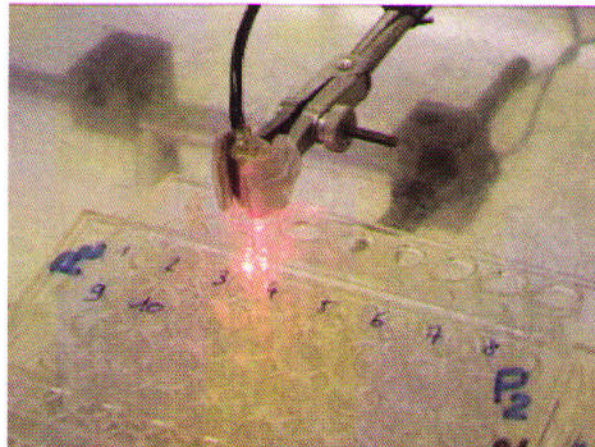
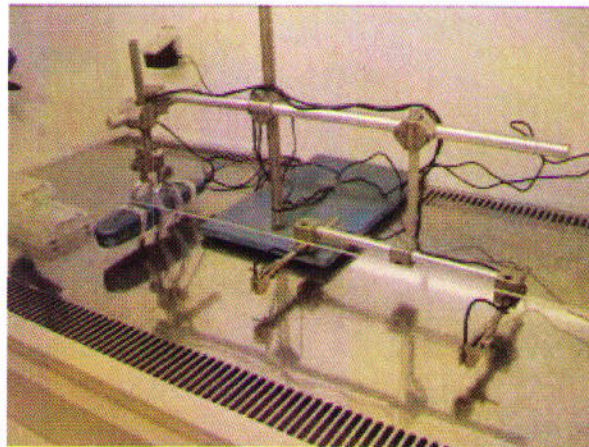


On day 0, the hairs which growth from D-4 to D0 was comprised between 200 and 700 µm were selected, then randomized and distributed into four batches of 10 hairs: T (control), R, P1 and P2. Ten hairs which growth from D-4 to D0 was comprised between 400 and 900 µm were selected for batch T0.

4. Treatment

Treatment by the lasers was performed on D0, D1, D2, D3, D5, D7, D8 and D9.

- Batch **R**: reference, 4 minutes per day
- Batch **P1**: prototype, 4 minutes per day
- Batch **P2**: combination of R and P1, 2 minutes per day successively



5. Sampling

On day 0, hairs from batch T0 were collected, hairs from batches T, P1 and P2 were collected on day 10. The hairs were frozen at -80°C.

RESULTS

1. Hair selection

Hairs with a length increase comprised between 200 and 700 µm were dispatched in 4 batches as follows:

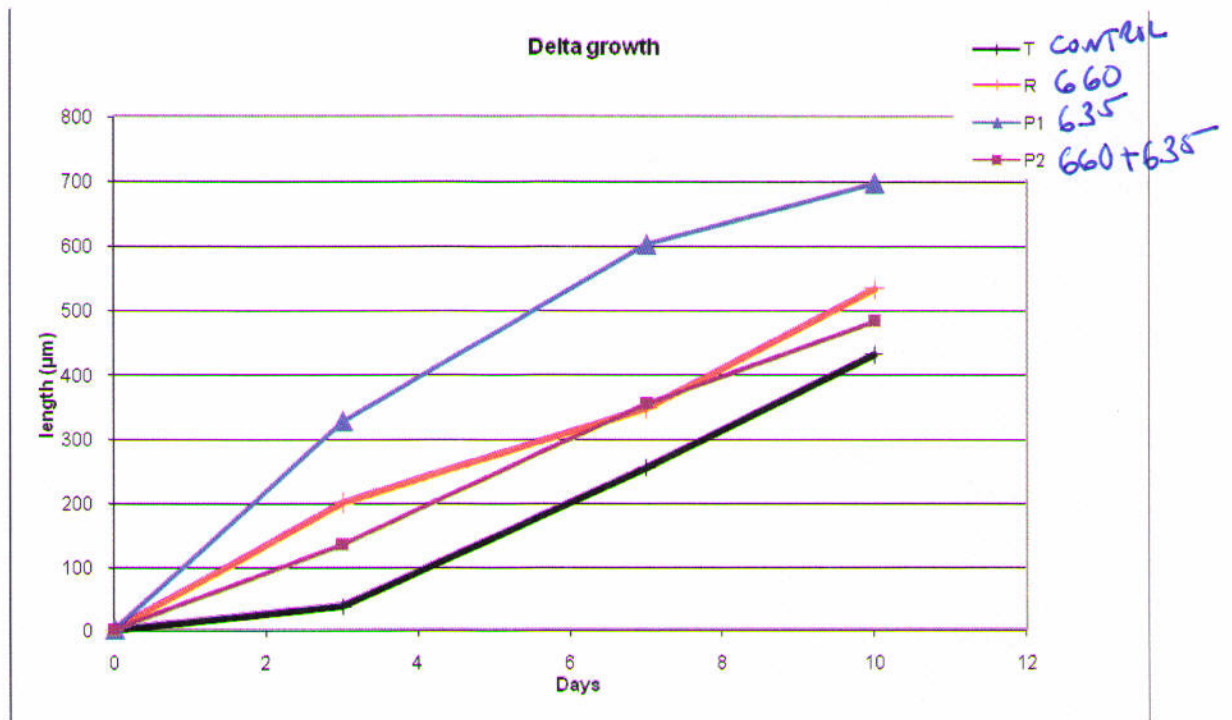
Batch	n°	D-4	D0	Growth D-4/D0
T	1	4413	5021	608
T	2	4119	4579	460
T	3	4174	4604	430
T	4	3611	4048	437
T	5	3599	3961	362
T	6	4251	4469	219
T	7	5121	5739	618
T	8	3425	4097	673
T	9	4941	5510	569
T	10	3533	4130	597
R	1	4451	5013	563
R	2	5389	5696	308
R	3	4573	4969	396
R	4	3700	4091	392
R	5	4809	5103	295
R	6	4105	4382	277
R	7	4484	5194	711
R	8	3747	4448	700
R	9	5134	5683	548
R	10	4811	5348	537
P1	1	4949	5408	459
P1	2	4650	5094	444
P1	3	5510	5878	368
P1	4	3175	3638	463
P1	5	4486	5133	647
P1	6	5066	5313	247
P1	7	4482	5136	655
P1	8	4858	5357	499
P1	9	5461	6018	557
P1	10	4577	5107	530
P2	1	3936	4509	573
P2	2	4978	5358	380
P2	3	4859	5164	305
P2	4	4962	5181	219
P2	5	5451	5719	268
P2	6	3901	4197	296
P2	7	4413	5021	608
P2	8	4119	4579	460
P2	9	4174	4604	430
P2	10	3611	4048	437

The length of each hair (μm) was measured again on D3, D7 and D10.

Lot	n°	$\Delta(\text{J3-J0})$	$\Delta(\text{J7-J0})$	$\Delta(\text{J10-J0})$
T	1	63	276	680
T	2	-164	-24	70
T	3	-34	217	37
T	4	13	200	454
T	5	-396	-60	242
T	6	77	20	-115
T	7	-11	552	955
T	8	652	723	1108
T	9	35	212	401
T	10	143	436	493
R	1	126	312	607
R	2	242	620	554
R	3	94	-41	509
R	4	171	806	1058
R	5	-151	165	101
R	6	928	352	544
R	7	-21	415	587
R	8	135	258	514
R	9	260	345	551
R	10	214	234	308
P1	1	148	389	804
P1	2	293	412	456
P1	3	665	961	1088
P1	4	369	690	774
P1	5	320	835	427
P1	6	318	463	620
P1	7	72	455	406
P1	8	326	685	857
P1	9	430	870	962
P1	10	333	262	574
P2	1			
P2	2	511	461	728
P2	3	-136	386	556
P2	4	132	50	328
P2	5	-84	58	-76
P2	6	-209	423	437
P2	7	207	349	336
P2	8	196	488	651
P2	9	125	348	430
P2	10	466	628	962

Mean growth (μm) for each batch

Delta length / D0	on D3	on D 7	on D 10
T	38	255	432
R	200	347	533
P1	327	602	697
P2	134	355	483



DISCUSSION

Product R induces
Product P1 induces
The combination of R and P1 induces

CONCLUSION

The results obtained show that