Enhanced bone formation using hydroxyapatite ceramic coated with fibroblast growth factor-2

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Journal: Acta Biomaterialia
Volume: 6
Number: 7
Page Range: 2751-2759
Year: 2010

URL: http://hdl.handle.net/2241/105803
<table>
<thead>
<tr>
<th></th>
<th>FGF-L</th>
<th>FGF-H</th>
<th>HAP-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium-containing solution</td>
<td>1.518 mL</td>
<td>1.423 mL</td>
<td>1.423 mL</td>
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<tr>
<td>(Ringer’s solution)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Phosphate-containing solution</td>
<td>0.228 mL</td>
<td>0.213 mL</td>
<td>0.213 mL</td>
</tr>
<tr>
<td>(Klinisalz® B)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkalinizer (Bifil®)</td>
<td>0.174 mL</td>
<td>0.164 mL</td>
<td>0.164 mL</td>
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<tr>
<td>FGF-2 solution</td>
<td>0.080 mL</td>
<td>0.200 mL</td>
<td>0       mL</td>
</tr>
<tr>
<td>(prepared from Fiblast®)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiological salt solution</td>
<td>0       mL</td>
<td>0       mL</td>
<td>0.200 mL</td>
</tr>
<tr>
<td></td>
<td>2.000 mL</td>
<td>2.000 mL</td>
<td>2.000 mL</td>
</tr>
</tbody>
</table>
Fig. 1
Fig. 2

- Burr hole
- Section cutting line
- Cranium
  - Outer layer
  - Inner layer
  - New bone
  - Extension

HAP

Thickness
Fig. 4

A

B

Cell number (x 10^4 /well)

Concentration (ng/mL)

Cell number (x 10^4 /well)

Concentration (ng/mL)
Fig. 4C
Fig. 5

Cumulative dose of released FGF-2 (ng/mL)

Time (days)

- FGF-L
- FGF-H
Fig. 6

(A) and (B) illustrate the cell number (x 10^4/well) for different conditions: HAP-N, FGF-L, FGF-H, and 10% FBS. The bars represent the mean ± standard error. Significant differences are indicated by asterisks: ** for p < 0.01 and * for p < 0.05.
Fig. 6C

![Graph showing increasing folds (Δ-ΔC(t)) for different conditions: HAP-N, FGF-L, FGF-H, and 10% FBS. The graph compares BHK-21 and MG63 cell lines. Significant differences are indicated by asterisks: *** for P < 0.001 and * for P < 0.05.](image-url)
Fig. 7

A

Bone formation

Inner layer of the cranium

B

Bone formation

Inner layer of the cranium

C
Fig. 8

A

B

Length (µm)

Thickness (µm)

2 weeks 4 weeks 8 weeks

Group 1

Group 2

Group 3

Group 4
Fig. 9A

Increasing folds (Δ-Cycle (t))

- 2 weeks
- 4 weeks

Group 1
Group 2
Group 3
Group 4

* P < 0.05
** P < 0.01
Fig. 9B

The graph shows the increasing folds (Δ-Cycle (t)) for different groups over 2 weeks and 4 weeks. The y-axis represents the increasing folds, and the x-axis represents the groups (Group 1, Group 2, Group 3, Group 4). The data points are indicated with error bars for each group.

- Group 1: Light blue bars
- Group 2: Light blue bars
- Group 3: Purple bars
- Group 4: Purple bars

The legend indicates:
- Light blue bars: 2 weeks
- Purple bars: 4 weeks

Significance levels are indicated by:
- *** (p < 0.001)
- ** (p < 0.01)

The data suggests a significant increase in Group 3 compared to other groups for both time points.