Identifying the Potential of Qur’anic Recitation on the Proliferation of Chondrocytes Derived from Rabbit Articular Cartilage: Work in Progress

Rosyafirah Hashim
Munirah Sha’ban, Sarah Rahmat, Zainul Ibrahim Zainuddin

1Department of Biomedical Science, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang Darul Makmur, Malaysia
Rosyafirah Hashim | rosyafirah@gmail.com
Munirah Sha’ban | munirahshaban@iium.edu.my

2Department of Audiology and Speech-Language Pathology, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang Darul Makmur, Malaysia
Sarah Rahmat | sarahrahmat@iium.edu.my

3Department of Diagnostic Imaging and Radiotherapy, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang Darul Makmur, Malaysia
*Zainul Ibrahim Zainuddin | zainul@iium.edu.my
INTRODUCTION

• In Islam, Qur’anic recitation is a method for treatment since Prophet Muhammad (ﷺ).
• Known to have therapeutic effects (Norsiah, et al., 2014).
• Qur’anic verse on Healing.

قُلْ هُوَ لِلَّذِينَ آمَنُوا هُدًى وَشِفَاء١

• “Say: It is a guide and a healing to those who believe;..”
  Al-Fussilat (41:44)

وَنُنَزِّلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاء٢ وَرَحْمَة١ لِلْمُؤْمِنِينَ ۙ وَلََ يَزِيدُ الظَّالِمِينَ إِلَّا خَسَارًٰ

• “And We sent down in the Qur’an such things that have healing and mercy for the believers.” Al-Isra (17:82)
  (translation by Ibnu Kathir, Abdullah Yusof Ali & Mamaduke Picktall)
Qur’anic verses treatment on cell cultures ??
INTRODUCTION

Articular Cartilage

- White tissue
- Covers the joints
- Made up from cell known as CHONDROCYTES
- Metabolically active
- Lack with blood supply
- Limited ability to repair itself
- Minor injury
INTRODUCTION

Articular Cartilage

Damage & Degeneration

Holy Qur'an
OBJECTIVE

This study aims to identify the potential of Qur’anic recitation, particularly Surah Al-Fatihah on the proliferation of chondrocytes derived from the rabbit articular cartilage.
MATERIALS & METHOD

1. Sample Collection
   - Ethical approval IIUM/IACUCAPPROVAL/2015/(5)(24)
   - Obtained & transported the samples back to laboratory

2. Chondrocytes Isolation
   - Sample Processing
   - Enzymatic digestion

3. Chondrocytes Culture
   - Initial seeding concentration is 50,000 cells/cm²
   - Maintained in 37°C humidified incubator at 5% CO₂ atmosphere

4. Chondrocytes Treatment
   - Divided into 3 groups
   - Exposed the cell cultures

5. Cell Count and Viability
   - Cells reached the 80% - 90% confluence, growth kinetics analysis was performed
RESULTS & DISCUSSIONS

- Cell Viability
- Total Cell Count
- Growth Rate
- Total Number of Cell Doubling (TNCD)
- Population Doubling Time (PDT)
1. Cell Viability

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Qur'anic Recitation</th>
<th>Arabic Poem Recitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>88</td>
<td>94</td>
<td>89</td>
</tr>
<tr>
<td>P1</td>
<td>91</td>
<td>95</td>
<td>93</td>
</tr>
<tr>
<td>Passage</td>
<td>89</td>
<td>94</td>
<td>93</td>
</tr>
<tr>
<td>P2</td>
<td>92</td>
<td>88</td>
<td>93</td>
</tr>
<tr>
<td>P3</td>
<td>84</td>
<td>88</td>
<td>94</td>
</tr>
</tbody>
</table>
2. Total Cell Count

Total Cells Count

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Qur'anic Recitation</td>
</tr>
<tr>
<td>Total Cells Count</td>
<td>850000</td>
<td>1075000</td>
</tr>
</tbody>
</table>
3. Growth Rate

![Graph showing growth rate over different passages.](image)
4. Total Number of Cell Doubling (TNCD)

- Control: 8.5
- Qur'anic Recitation: 9.7
- Arabic Poem Recitation: 9.1
5. Population Doubling Time (PDT)

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Qur'anic Recitation</th>
<th>Arabic Poem Recitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>2.6</td>
<td>2.3</td>
<td>2.5</td>
</tr>
<tr>
<td>P1</td>
<td>1.9</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>P2</td>
<td>1.3</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>P3</td>
<td>1.4</td>
<td>1.2</td>
<td>1.3</td>
</tr>
</tbody>
</table>
CONCLUSION

• This present study demonstrates that the chondrocytes cells exposed to the Qur’anic recitation shows a positive effect as proliferation of the cells was found to be increased when compared to the Arabic poem recitation and control groups.

• The chondrocytes culture results optimized in this preliminary work could pave the way for possible applications in treating injuries to articular cartilage and also be a potential approach for cartilage regeneration in tissue engineering.
1. Experiment should be conducted in larger scale.
2. Studies relating to wound healing assay can be conducted to observe the proliferation from photomicrograph aspect.
3. Gene expression analysis using chondrogenic (cartilaginous) markers shall be proposed to see whether or not Qur’anic recitation is able to sustain cells (original) phenotype in monolayer culture.
4. Future work should also be directed to replicate this study on diseased cells.
5. A new variable, such as Western poem recitation shall be introduced.
The authors thanked the Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Kuantan Campus and Ministry of Education for their support and for providing MyRA Incentive Research Grant Scheme (MIRGS13-01-002-0003).
REFERENCES


thank you
<table>
<thead>
<tr>
<th></th>
<th>&gt;90% Confluence</th>
<th>0 Hour</th>
<th>24 Hours</th>
<th>48 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QR</strong></td>
<td><img src="image" alt="QR Baseline" /></td>
<td><img src="image" alt="QR 0 Hour" /></td>
<td><img src="image" alt="QR 24 Hours" /></td>
<td><img src="image" alt="QR 48 Hours" /></td>
</tr>
<tr>
<td><strong>APR</strong></td>
<td><img src="image" alt="APR Baseline" /></td>
<td><img src="image" alt="APR 0 Hour" /></td>
<td><img src="image" alt="APR 24 Hours" /></td>
<td><img src="image" alt="APR 48 Hours" /></td>
</tr>
</tbody>
</table>