Background
Genetic factors can influence the intensity and severity of host responses to bacterial challenge which may result in various levels of periodontal tissue destruction. It seems that patients with different genetic composition might exhibit different levels of immune responses to the same infection.

Over the past decades, the associations between genetic polymorphisms and periodontitis have been widely studied. More and more researchers believe that multigenetic polymorphisms are associated with periodontitis. Our study was planned to investigate the association between multigenetic polymorphisms and periodontitis in the Hong Kong Chinese population.

Objective
To screen for 165 single nucleotide polymorphisms (SNPs) in 18 genes of individuals with or without periodontitis in order to investigate detectable associations between multigenetic polymorphisms and periodontitis.

Materials and Methods
193 periodontitis patients and 120 non-periodontitis Hong Kong Chinese adult subjects were recruited from the Prince Philip Dental Hospital patient pool of the Faculty of Dentistry, the University of Hong Kong. The University of Hong Kong, Hong Kong SAR, China.

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Methods
The homozgyous genotypes of coding SNP (rs1801274) together with genotype CC of the SNP (rs13878) in regulatory region of FCGR2A were significantly more prevalent in periodontitis patients (p=0.041)(Table 3).

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Results
165 SNPs were screened (Table 1). None of the SNPs showed significant difference in genotype distributions between periodontitis patients and non-periodontitis controls.

Table 1. Summary of SNPs Screened
<table>
<thead>
<tr>
<th>Gene Symbol</th>
<th>SNP ID</th>
<th>SNP Type</th>
<th>Minor Allele</th>
<th>Minor Allele Frequency</th>
<th>Call Rate</th>
<th>Genotype CC</th>
<th>Genotype CT</th>
<th>Genotype TT</th>
<th>Genotype CT &amp; TT Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCGR3A</td>
<td>rs396991</td>
<td>Non-synonymous</td>
<td>0.9</td>
<td>0.16</td>
<td>0.86</td>
<td>45</td>
<td>88</td>
<td>13</td>
<td>106</td>
</tr>
<tr>
<td>FCGR3A</td>
<td>rs15811</td>
<td>Non-synonymous</td>
<td>0.9</td>
<td>0.91</td>
<td>0.91</td>
<td>91</td>
<td>92</td>
<td>184</td>
<td>183</td>
</tr>
<tr>
<td>FCGR3A</td>
<td>rs13878</td>
<td>Non-synonymous</td>
<td>0.99</td>
<td>0.31</td>
<td>0.99</td>
<td>210</td>
<td>234</td>
<td>444</td>
<td>250</td>
</tr>
</tbody>
</table>

Candidate SNPs for multigenetic polymorphism analysis (Table 2)
- Coding SNPs or non-coding SNPs in regulatory region
- Minor allele frequencies > 5%
- p-value(Chi-square test) of the single SNP association analysis <0.1

Table 2. Candidate SNPs for Multigenetic Polymorphism Analysis
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Discussion and Conclusion
Homzygous genotypes of SNP rs1801274 together with genotype CC in rs13878 in FCGR2A; genotype GG in rs396991 together with GG in rs15811 in FCGR3A seem to be associated with periodontitis in the Hong Kong Chinese population.

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