Compatibility of Nafcillin Sodium and Gentamicin Sulfate
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Background
- Aminoglycosides and β-Lactams are used concurrently for synergistic effects in cases of severe infections.
- There are known interactions with β-Lactams and aminoglycosides.
- There are limited studies with these interactions, specifically with nafcillin and gentamicin.

Results

<table>
<thead>
<tr>
<th>Fig. 1 – yellow precipitate formed</th>
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<tbody>
<tr>
<td>Fig. 2 - yellow precipitate formed</td>
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<td>Fig. 3 - yellow precipitate formed</td>
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<td>Fig. 4 – precipitate formed at low concentrations</td>
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<td>Fig. 5 – all syringes formed precipitate</td>
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Conclusion
- Testing various concentrations and various solutions has proven that precipitate will form when mixing nafcillin sodium and gentamicin sulfate confirming that gentamicin and nafcillin are incompatible in syringe and glass vial.
- More testing will need to be done in order to determine if this interaction causes inactivation of gentamicin or causes a new compound to form, or if pure gentamicin/nafcillin is precipitating out in the solution.
- Further research/investigation:
  - nuclear magnetic resonance spectroscopy (NMR)
  - differential scanning calorimetry (DSC)
  - isothermal calorimetry

This does not rule out the use of the two medications as long as they are administered in separate sites.

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