Introduction to New Agents to Treat Leprosy

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Need to Utilize and Discover New Antimicrobials / Regimens to Treat Leprosy

- In general, currently only a single 2 or 3 drug regimen is recommended to treat all patients with leprosy.
- Adverse effects to all pharmaceuticals limit their utilization in a significant number of patients; leprosy is no exception; alternative agents and regimens have not been recommended.
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• Examples of side effects/toxicities of elements of MDT
  – Rifampin is associated with hepatotoxicity, allergic dermatitis and rarely thrombocytopenia/renal failure.
  – Dapsone regularly decreases the hemoglobin concentration and may cause the devastating “sulphone syndrome.”
  – Clofazamine skin discoloration is cosmetically unacceptable to light-skinned individuals.
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- Relapse and treatment failure in MB patients, especially those with a high BI, is unacceptably high.
- Successful short-course treatment for tuberculosis requires two or more bactericidal agents; only rifampin and not dapsone and clofazamine are bactericidal for *M. leprae*. 
The Relative Potency of Active Agents Against LL Leprosy Is Best Judged By the Time Taken to Clear Viable *M. leprae* When Inoculated Into Mice and Whether Single Doses Regularly Kill *M. leprae*  

<table>
<thead>
<tr>
<th></th>
<th>Dapsone</th>
<th>Clofazamine</th>
<th>Rifampin</th>
<th>Ofloxacin</th>
<th>Minocycline</th>
<th>Clarithromycin</th>
<th>Moxifloxacin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to eliminate viable <em>M. leprae</em></td>
<td>3-6 mo.</td>
<td>3-6 mo.</td>
<td>A few days to a few weeks</td>
<td>1-2 mo.</td>
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<td>A few days to a few weeks</td>
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<td>Single dose killing</td>
<td>***</td>
<td>***</td>
<td>+</td>
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<td>+</td>
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Advantages of Superior Antimicrobials/Regimens

- Replace current agents when unacceptable side effects / toxicities occur.
- More reliable cure.
- Shorter duration of treatment.
Clinical Response to Moxifloxacin