Researchers from Washington University School of Medicine have discovered that the Zika virus uses the process of autophagy, or cellular waste disposal—a key feature of the placental barrier—to infect the fetus. Their research also showed that an existing malaria drug, hydroxychloroquine, can protect the fetus by blocking this process. The drug is already approved for short-term use in pregnant women. Further studies are needed before it can be used for the duration of pregnancy. Counterintuitively, hydroxychloroquine blocks Zika by lowering the body’s ability to clear out invaders.

Missouri’s top global health R&D institutions by USG funding*

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington University</td>
<td>$60.8 million</td>
</tr>
<tr>
<td>Saint Louis University</td>
<td>$7.4 million</td>
</tr>
<tr>
<td>University of Missouri-Kansas City</td>
<td>$3.6 million</td>
</tr>
<tr>
<td>University of Missouri-Columbia</td>
<td>$1.8 million</td>
</tr>
<tr>
<td>University of Missouri-St. Louis</td>
<td>$81 thousand</td>
</tr>
</tbody>
</table>

Global health R&D at work in the Show Me State

Missouri’s top areas of global health R&D by USG funding*

- NTDs: 44.6%*
- Malaria: 19%
- Tuberculosis: 13.5%
- Salmonella infections: 6.2%
- HIV/AIDS: 3%
- Diarrheal diseases: 2.7%
- Other: 11%

*Authors’ analysis of USG investment data from the G-FINDER survey, including funding for R&D for neglected diseases from 2007–2015 and for Ebola and select viral hemorrhagic fevers from 2014–2015. Reflects USG funding received by entities in state including academic and research institutions, product development partnerships, other nonprofits, select corporations, and government research institutions, as well as self-funding or other federal agency transfers received by federal agencies located in state; but excludes pharmaceutical industry data which is aggregated and anonymized in the survey for confidentiality purposes. See www.ghtcoalition.org for full methodology.

1. Based on previous analysis of the economic impact of National Institutes of Health R&D funding and author’s analysis described above. See www.ghtcoalition.org for additional details.
4. NTD: neglected tropical disease. NTDs include Buruli ulcer, Dengue, Helminths, Kinetoplastids, Leprosy, Trachoma, and Leptospirosis.

www.ghtcoalition.org