**WHAT ARE ALLERGIES?**

Allergies and allergic asthma occur when the immune system overreacts to a harmless substance (allergen) such as pollen, animal dander, food or medication. The body has an allergic reaction when it releases chemicals that cause symptoms, which may include sneezing, itching, rashes and sometimes breathing difficulties, asthma or even a life-threatening response (anaphylaxis).

Anyone can get allergies, at any age. About one in five Americans are affected by allergy. Generally, people are sensitive to certain allergens because of either genetics or their environment. Over time, allergic reactions can change, disappear or recur. Allergies are on the rise; it is estimated that by 2050 about one in two people will have at least one allergy.

**HOW COMMON ARE THEY?**

- 50M million Americans have at least one allergy.
- 15M million Americans have at least one food allergy.

**Types of Allergies**

<table>
<thead>
<tr>
<th>Skin Contact</th>
<th>Injection</th>
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<tbody>
<tr>
<td>Poisonous Plants</td>
<td>Bee Stings</td>
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<tr>
<td>Latex</td>
<td>Medications</td>
</tr>
<tr>
<td>Animal Dander</td>
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</tbody>
</table>

**Ingestion**

- Peanuts
- Shellfish
- Milk

**Inhalation**

- Pollen
- Mold
- Dust
HOW IS BRI ADDRESSING ALLERGIES?

- BRI researchers identified a single type of cell that appears to drive all allergies.
- Discovery of this cell is changing the trajectory of allergy research.
- Current research is exploring simpler, safer ways to diagnose allergies, and find new therapies to block and possibly eliminate allergies altogether.

Food Allergies
- Every three minutes, a food allergy reaction sends someone to the emergency room.
- One in 13 children – or roughly two in every classroom – has a food allergy.
- About 40 percent of children with food allergies are allergic to more than one food.

Clinical Trials
In partnership with the Asthma, Allergy and Immunology Clinic at Virginia Mason, and in research collaboration with major pharmaceutical and biotech companies, we are searching for new diagnostic and therapeutic solutions that address patient needs to:
- Diagnose disease earlier
- Improve treatment efficacy
- Design new immunotherapy strategies
- Predict who is likely to respond to therapy

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BRI researchers work with hundreds of physicians and patients through biorepositories and clinical trials—all focused on improving human health.

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