**Clinical Utility**

ImmunoCAP® Allergen component f430, rAct d 8 in combination with ImmunoCAP® f84, Kiwi, adds clinical value in the diagnostic work-up of kiwi-allergic patients.

Sensitization to Act d 8, a Bet v 1 homologue aids in:
- Assessment whether symptoms originate from birch-pollen allergy.
- Identifying patients at risk of symptoms due to cross-reactivity with other food and plants containing Bet v 1 homologous proteins.

**Allergen Description**

Act d 8 is a 17 kDa protein from green kiwi (*Actinidia deliciosa*) (1). Act d 8 belongs to the PR-10 family and shares 50% homology with Bet v 1, the most thoroughly characterized PR-10 allergen (1). Act d 8, like other Bet v 1 homologous proteins, is heat labile and expected to be prone to gastric digestion (2).

**Cross-Reactivity**

Act d 8 shows 97% amino acid sequence similarity with the related Act c 8 from gold kiwi (*Actinidia chinensis*) (1). Sequence homology has also been demonstrated between Act d 8 and other Bet v 1 homologues in food and polens, ranging from 50% for Aln g 1 from alder pollen to 61% for Pru ar 1 from apricot (3). See Table 1 for more information.

Bet v 1 homologous proteins are major cross-reactive allergens and the most relevant sensitizing proteins in patients with a combined birch/plant food allergy (4-6). About 70% of birch allergic patients experience allergic symptoms when consuming fruits, nuts and/or vegetables such as hazelnut, apple, other stone fruits, celery and carrot (5).

**Clinical Experience**

Allergy to kiwi fruit is being increasingly reported, and some regard kiwi as being one of the major inducers of plant food allergy (7). However, prevalence data as well as characterization of the clinical features of allergy to kiwi are currently limited (8). Patients affected by intake of kiwi present a wide range of symptoms, from mild local so-called oral allergy syndrome (OAS) to more generalized symptoms and even life-threatening anaphylaxis (8-13).

Kiwi-allergic people are expected to be sensitized to several kiwi fruit proteins, and Act d 8 represents the link to birch-pollen associated kiwi allergy. Although sensitization to Bet v 1 homologous proteins is usually associated with OAS, severe oral symptoms and anaphylactic reactions have been reported and attributed to a Bet v 1 homologue in soybean (14).

Kiwi allergy seems to be mostly associated with latex, birch- and grass-pollen allergy. However, isolated allergy to kiwi has nevertheless also been reported (8).

**Table 1.** Sequence homology between Act d 8 and other Bet v 1 homologues from food and pollen (3).

<table>
<thead>
<tr>
<th>PR-10 homologue and Allergen source</th>
<th>Sequence homology with Act d 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pru ar 1 Apricot</td>
<td>61%</td>
</tr>
<tr>
<td>Mal d 1 Apple</td>
<td>57%</td>
</tr>
<tr>
<td>Fag s 1 Beech pollen</td>
<td>57%</td>
</tr>
<tr>
<td>Pru av 1 Cherry</td>
<td>56%</td>
</tr>
<tr>
<td>Cor a 1 Hazelnut</td>
<td>55%</td>
</tr>
<tr>
<td>Pru p 1 Peach</td>
<td>54%</td>
</tr>
<tr>
<td>Bet v 1 Birch pollen</td>
<td>53%</td>
</tr>
<tr>
<td>Aln g 1 Alder pollen</td>
<td>50%</td>
</tr>
</tbody>
</table>
References


For further reading, see: www.immunocapinvitrosight.com