*Canis familiaris* Allergen 1-White Paper Review

Certain dog breeds are described as being hypoallergenic on the basis of personal reports that these dogs are better tolerated by people with allergies. This assumption is attributed to less shedding as hair is thought to be the main aggravator of allergy symptoms.

However, there is no such thing as a "hypoallergenic" dog(1). The hair itself has shown not to be the allergen (2). Instead, major lipocalin protein *Canis familiaris* allergen 1 (*Can f* 1) and minor protein *Canis familiaris* allergen 2 (*Can f* 2) are responsible for triggering allergic reactions (3)(4)(5)(6). These allergens are found in saliva and subsequently in dander from grooming (2)(3)(4)(7)(8).

The misconception that low shedding dogs are less allergenic comes from the fact that *Can f* 1 proteins are found in the hair, thus making the hair appear to be the problem. When a dog grooms itself, salivary *Can f* 1 sticks to the hair and skin cells (2)(9). As the dog sheds these allergens are transported on the hair and dander and released into the environment. For this reason, dogs that shed less may create less of an allergic reaction in pet owners as fewer allergen particles are dispersed into the air. However, it does not mean that they are "hypoallergenic." Since all dogs salivate as well as produce dander there will always be the existence of airborne allergen particles. Even hairless dogs produce dander. These allergens can trigger an allergic reaction through inhalation or direct contact with any surface upon which particles have settled. Subsequent transfer to the mouth or eye area can result in allergy symptoms. Therefore, the amount of shedding does not determine the degree of the allergic reaction, only the level of exposure. Additionally, it has been shown that hair length plays no significant role in *Can f* 1 levels (2).

Testing Can F1 levels in hair, dust, and saliva samples have consistently demonstrated that dog breeds thought to be hypoallergenic, and those considered to cause allergic reactions, have shown the same variability of Can F1 levels, ranging from high to low concentrations within all breeds tested. This demonstrates that in terms of choosing a dog to eliminate allergies, dogs like Poodles and Portuguese Water Dogs are not superior to other breeds. There are no overall differences in the range of *Can f* 1 levels between breeds within the "hypoallergenic" category and those breeds not considered hypoallergenic, This shows that no particular breed is preferable in that there isn't a dog that is the best or the worst for people with allergies (1)(2)(11). *Can f* 1 production in dogs of the same breed displays very high variability from one dog to another. This demonstrates that while levels of *Can f* 1 may vary among dogs, the breed is not a significant factor (1)(2). Essentially, finding a dog that causes less of an allergic reaction is simply just luck. It's about picking a dog that naturally produces low levels of *Can f* 1, a characteristic not attached to any breed in particular.

**A solution to this problem would need to perform the following functions: 1. a decrease in stress as elevation causes an increase in shedding which consequently raises the amount of *Can f* 1 protein particles released into the air and 2. an overall suppression of the *Can f* 1 protein. Dogs with lower levels of *Can f* 1 cause less of a reaction in allergic pet owners (10).**

**At the Pet Allergy Institute we strive to fix problems rather than mask them. To do so, we have created a product that physically reduces the amount of Can f 1 protein in the saliva and dander of the dog. As a result, the dog has truly become more "hypoallergenic", and the owner is now able to comfortably spend time with his or her dog. This product can be used for dogs of any breed and has been shown to decrease allergen proteins by up to 75%. All ingredients are natural and meet GRAS standards.**

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