Terra Canis

Hausmannskost für Hunde

Wissenschaftliche Studie zur Qualität kommerzieller Diäten für Allergiker

Hunde mit einer Futtermittelallergie müssen häufig lebenslang mit reduzierten Menüs - sogenannten Ausschlussdiäten ernährt werden. Wer diese nicht selbst zubereiten möchte, greift in der Regel zu kommerziellen Allergiker-Menüs - und genau diese sind jetzt wissenschaftlich unter die Lupe genommen worden, denn für den Erfolg einer Allergiker-Nahrung ist ihre korrekte Zusammensetzung eine wichtige Voraussetzung!

Getestet wurde aus diesem Grund, ob kommerzielle Allergiker-Produkte verschiedenster Anbieter neben der deklarierten Fleischsorte auch die DNA anderer, nicht genannter Fleischsorten enthalten.

Im Ergebnis der Studie „Detection of DNA from undeclared animal species in commercial elimination diets for dogs using PCR“ (Horvath-Ungerboeck, Widmann, Handl; Veterinary Dermatology 2017; 28:373-e86) konnte bei 9 von 10 Produkten namhafter Hersteller die DNA von einer oder mehreren nicht angegebenen Tierarten gefunden werden, wobei am häufigsten Rind (8 Produkte) und Schwein (6 Produkte) nachgewiesen wurde. Einzig einwandfrei und ohne jegliche Verschmutzung mit einer Fremd-DNA hat *Terra Canis Hypoallergen* abgeschnitten. Geprüft wurde die Sorte Terra Canis Hypoallergen Pferd. Dieses Produkt kann somit bedenkenlos für die Durchführung einer sogenannten Ausschlussdiät zur Diagnose und Behandlung von Allergikern verwendet werden - und das ist jetzt auch wissenschaftlich bewiesen.

Hypoallergen Linie

Terra Canis GmbH, Friedrichstraße 1a, D-80801 München
Geschäftsführung: Birgitta Ornau – Dr. Marcus Vogler
Telefon: +49 (0)89 69 33 41-500 Mail: info@terracanis.eu
Handelsregistereintrag: Amtsgericht München HRB 186241
USt-IdNr.: DE 271939498 Steuer-Nummer: 143/185/80791

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Detection of DNA from undeclared animal species in commercial elimination diets for dogs using PCR

Christa Horvath-Ungerboeck*, Karoline Widmann* and Stefanie Handl†

*Clinical Unit of Internal Medicine Small Animals, Department for Companion Animals and Horses, University Clinic for Small Animals, University of Veterinary Medicine, Veterinaerplatz 1, 1210 Vienna, Austria
†Futterambulanz nutritionist practice, Strohgasse12/15, 1030 Vienna, Austria

Correspondence: Christa Horvath-Ungerboeck, Clinical Unit of Internal Medicine Small Animals, Department for Companion Animals and Horses, University Clinic for Small Animals, University of Veterinary Medicine, Veterinaerplatz 1, 1210 Vienna, Austria. E-mail: christa.horvath-ungerboeck@vetmeduni.ac.at

Background – Elimination diets are the gold standard for the diagnosis of adverse food reactions (AFR). A broad variety of commercial diets are available containing either hydrolysed protein or novel ingredients which claim to be suitable for elimination diets. Contamination may be one factor accounting for the failure of commercial elimination diet trials.

Hypothesis/Objectives – To test commercial diets labelled as suitable for elimination diets for dogs, for DNA of animal origin other than that declared on the label.

Methods – Twelve commercial dry and tinned dog food products were investigated for DNA of animal origin (chicken, turkey, beef, mutton and pork) using PCR testing.

Results – In nine of 10 over-the-counter diets, DNA of one or more animal species other than declared on the label was identified. The DNA most frequently detected was derived from beef (n = 8) and pork (n = 6). Two hydrolysed diets only contained DNA of the declared animal source.

Conclusions and clinical importance – Over-the-counter "single protein diets" or canned meat products cannot be recommended for the diagnosis of dogs with AFR because contamination may cause the elimination diet to fail.

Introduction

The term adverse food reaction (AFR) describes any abnormal response to the ingestion of food.[1,2] The diagnosis of an AFR is confirmed by demonstrating a resolution of clinical signs after feeding an elimination diet with a recurrence when the original diet is fed. A homemade diet utilizing a novel protein and carbohydrate source can be used as an elimination diet but is not practical for all owners.[3] A variety of commercial diets claim to be suitable for elimination diet trials. These include hydrolysate diets, where the protein source is hydrolysed, or diets comprised of novel proteins such as horse, venison, rabbit, ostrich or duck with potatoes, sweet potatoes or parsnip as novel carbohydrate sources. Even when the diet is selected correctly according to the feeding history, animals can have signs of AFR after eating commercial diets containing ingredients that were tolerated when fed as components of a home-prepared diet.[4] Several explanations for this observation have been proposed; the high temperatures applied during the production of commercial diets, which exceed those used during home cooking, creating new allergens; commercial diets containing ingredients such as animal fat, starch or herbs containing traces of protein or causing signs of intolerance and contamination of commercial diets by protein sources during production. Contamination of four over-the-counter venison diets detected by enzyme-linked immunosorbent assay (ELISA) testing, and ten commercial diets by microscopic evaluation and PCR testing has previously been reported.[5,6]

In Europe, all pet food is available without prescription. Claims such as "hypoallergenic" or "suitable for elimination diets" are widely used in advertising especially for single novel protein diets. It can be challenging for pet owners and veterinarians to select an appropriate commercial diet for an elimination diet trial. The aim of the current investigation was to evaluate commercially available dog food products used as elimination diets for DNA of animal origin (chicken, turkey, beef, mutton and pork) with PCR testing.

Material and methods

Diets

Twelve commercial dog food products marketed for use as elimination diets (Table 1) were selected. These included two hydrolysed veterinary diets, six over-the-counter complete dry diets, two over-the-counter complete canned diets and two canned meat products. From each bag of dry food a sample of approximately 1 kg was placed into a uniform plastic bag using new gloves for each product

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to avoid contamination. Canned products were sent in unopened, with the labels removed. DNA extraction and PCR were performed at the accredited laboratory of the Austrian Agency for Health and Food Safety (AGES; Spargelfeldstraße 191, 1220 Vienna, Austria). Beef, chicken, mutton, pork and turkey were selected as the target species for PCR because these protein sources are widely used and common allergens for dogs.[7]

DNA extraction

DNA extraction was performed according to ISO 21571.[8] Each sample was extracted and measured in duplicate including negative controls. Depending on composition and texture, dry food samples were homogenized in a cutter (robot coupe R5 plus, Toperczer; Schwechat-Rannersdorf, Austria) for 5–10 min and canned food samples were ground in a blender (Thermomix, type 21, Vorwerk; Hard, Austria) for one minute. Up to 2 g of minced material was used for DNA extraction. The homogenized sample was mixed with 10 mL CTAB-Extraction buffer (2% CTAB + 0.02 M EDTA + 0.1 M Tris + 1.4 M NaCl + HCl, pH 8.0) and 40 μL Proteinase K (Merck 1.07393.0010; 600 mAnson-U/mL, Merck KGaA; Darmstadt, Germany). This mixture was incubated overnight at 45 to 50°C with constant agitation. After centrifugation at 3,220 ***g*** (model 5810 R, Eppendorf; Hamburg, Germany) for 15 min, 1 mL of the supernatant was transferred into a 2 mL reaction tube already containing 500 μL chloroform-solution (chloroform + i-amylalcohol: 24 + 1). After vortexing at full speed for 30 s and centrifugation (10 min, 17,950 ***g***) one volume of the clear upper (i.e. aqueous) phase was transferred to a new 2 mL reaction cup already containing two volumes of precipitation buffer (0.5% CTAB + 0.04 M NaCl). After incubation for 60 min at room temperature the mixture was centrifuged (10 min, 17,950 ***g***). The supernatant liquid was completely discarded and the remaining pellet was dissolved in 450 μL NaCl (1.2 M) + 50 μL 10× RNAse buffer (3 M NaCl + 100 mM Tris + 50 mM EDTA + HCl, pH 7.4) + 5 μL RNAse (e.g. Roche 1119915, ROCHE Biochemical Reagents; Kaiseraugst, Switzerland). RNA hydrolysis was carried out at 56°C for 10 min at constant shaking.

After cooling, 500 μL phenol/chloroform/i-Amylalcohol (AppliChem A0944.0250, AppliChem GmbH; Darmstadt, Germany) were added and the mixture was shaken vigorously and centrifuged (10 min, 17,950 ***g***). One volume of the clear upper (i.e. aqueous) phase was transferred into a new 1.5 mL reaction cup already containing 0.6 volume of i-Propanol. After mixing, the DNA was precipitated by incubation in a freezer for 60–90 min and subsequent centrifugation. The supernatant liquid was discarded completely and the remaining pellet was washed once with ethanol 70%. The DNA pellet was dried overnight at room temperature or in a vacuum-centrifuge and then dissolved in 100 μL water. In-house distilled water was used for DNA extraction and for carrying out PCR reactions (Milli-Q® Integral Water Purification System; Merck).

Measuring DNA concentration and preparing working dilutions

DNA concentration was measured by an UV-spectrophotometer (Nano Photometer, Implen; Munich, Germany) at 260 nm. Provided that the optical path is 1 cm in length, 1 $OD_{260\ nm}$ corresponds to 50 μg double-stranded DNA per millilitre. For subsequent real-time PCR, the DNA solution was diluted with water to a concentration of 5 μg/mL.

Real-time PCR

For establishing a cut-off Ct value for each species-specific PCR, a cut-off standard was analysed in duplicate along with the samples. This standard contained 4995 ng of nontarget DNA (e.g. herring sperm DNA) and 5 ng (i.e. 0.1%) of DNA of the species to be detected by the respective PCR system. The reactions for pork, beef, chicken and turkey were performed in the same tubes. Negative controls containing all PCR reagents and distilled water were included in each run. Real-time PCR was conducted in an ABI7500 Real Time

Table 1. Commercial elimination diets analysed for common food antigens

Diet number	Type of diet	Composition as declared
1	Complete dry	Rice, hydrolysed soya protein isolate, animal fats, minerals, hydrolysed poultry liver, beet pulp, soya oil, fructo-oligo-saccharides, fish oil, borage oil & marigold extract (source of lutein)
2	Complete dry	Dried potato, chicken liver hydrolysate, potato starch, cellulose, vegetable oil, animal fat, minerals, vitamins, DL-methionine, trace elements, L-tryptophan, taurine, beta carotene, with mixed tocopherols and citric acid
3	Complete dry	Cereals (rice), meat and animal derivatives (rabbit), oils and fats (poultry fat, linseed oil), derivatives of vegetable origin (beet pulp), minerals
4	Complete dry	Meat and animal derivatives (venison), oils and fats (sunflower oil, poultry fat, linseed oil), derivatives of vegetable origin (potato, beet pulp), minerals & yeast
5	Complete dry	Potatoes 70%, dried horse meat 19%, sun flower oil, linseed oil, calcium carbonate, sodium chloride, aloe vera 0.03% & rosemary
6	Complete dry	Potatoes 71%, dried venison 20%, sun flower oil, linseed oil, calcium carbonate, sodium chloride, aloe vera 0.03% & rosemary
7	Complete dry	Vegetables (potatoes, parsnip), meat and animal derivatives (horse meat meal), oils and fats, derivatives of vegetable origin (cellulose, root of chicory (0.1%)) & minerals
8	Complete canned	Vegetables (potatoes), meat and animal derivatives (rabbit) (29.5%), cereals (spelt), oils and fats, derivatives of vegetable origin (sugar beet pulp) & minerals
9	Complete canned	Horse meat (30%), horse heart (30%), Jerusalem artichoke (36%), linseed oil, salmon oil & sea kelp
10	Complementary canned	Horse meat (60%), horse heart (15%), minerals & water
11	Complementary canned	Horse meat (100%)
12	Complementary canned	Horse meat, broth

A complementary diet does not contain all of the required nutrients and should be combined with other foods.
(1) Royal Canin Hypoallergenic, Royal Canin; Aimargues, France; (2) Hills z/d, Hill's Pet Nutrition; Topeka, KS, USA; (3) Trovet Hypoallerganic Rabbit & Rice, Trovet Deutschland GmbH; Steegerstr., 3741334 Nettetal, The Netherlands; (4) Trovet Hypoallerganic Venison & Potato, Trovet; (5) Exclusion Horse & Potato Exclusion, DORADO S.R.L.; Via Romea, 10 - Monsole di Cona 30010 (Venice), Italy; (6) Exclusion Venison & Potato Exclusion, DORADO; (7) Vet-Concept DOG Sana (horse), Vet-Concept GmbH & Co. KG; Dieselstr. 4, 54343 Föhren, Germany; (8) Vet-Concept sensitive diet (rabbit), Vet-Concept; (9) Terra Canis Pferde (horse), Terra Canis GmbH; Bismarckstr. 2, 80803 München, Germany; (10) Petfit Pferd & Kartoffel (horse and potatoes), Pet-Fit Vertriebsleiter; Rathausplatz 31/c/2,3610 Weißenkirchen, Austria; (11) Lunderland Dosenfleisch Pferd Lunderland (horse), Tierfutter GmbH.; Altmärker Str. 1, 29410 Salzwedel OT Brietz, Germany; (12) Hermann's Reinfleischdosen Pferd (horse), Herrmann GmbH; Am Ölfeld 6, 85617 Assling, Germany.

Table 2. Compilation of primers and probes used for the detection of food antigens in elimination diets for dogs

Species	Name of Primer & Probes	Conc. (μmol/L)	Sequence (5′→ 3′)	Amplicon size (bp)	Reference
Chicken	Gallus1 F	0.2	CAG CTG GCC TGC CGG	76	[9]
	Gallus1 R	0.2	CCC AGT GGA ATG TGG TAT TCA		
	Gallus1 TMP	0.08	*FAM*-TCT GCC ACT CCT CTG CAC CCA GT-*BHQ1*		
Turkey	MG-ProlR-F	0.2	CAA AGA AAG CAG GGA AAA GGA	83	[9]
	MG-ProlR-R	0.2	TGC ACT CTC GTT AAA AAGH GA		
	MG-ProlR-Cy5	0.08	*Cy5*-CTG GGA AAG TTA CTG TGT AGC CTC AGA ACG-*BHQ2*		
Beef	Rd1 F	0.2	GTA GGT GCA CAG TAC GTT CTG AAG	96	[9]
	Rd1 R	0.2	GGC CAG ACT GGG CAC ATG		
	Rd1TMP	0.08	*FAM*-GAA CCT CAT TCT GGG GCC CCG-*BHQ1*		
Pork	Sus1 F1	0.2	CGA GAG GCT GCC GTA AAG G	80	[9]
	Sus1 R	0.2	TGC AAG GAA CAC GGC TAA GTG		
	Sus1 TMP	0.08	*Cy5*-TCT GAC GTG ACT CCC CGA CCT GG-*BHQ1*		
Sheep	Sheep1 F	0.3	TTTCGCCTTTCACTTTATTTTCCC	101	[10]
	Sheep1 R	0.3	GAATTCCTGTGGGGTTGTTGG		
	Sheep1 Pr	0.02	*CY5*-CGC AGC CCT CGC CAT AGT TCA CCT-*BHQ2*		

BHQ1 and *BHQ2 Black hole quencher* (Sigma-Aldrich Handels GmbH; Vienna, Austria).

Table 3. PCR results of testing commercial elimination diets for DNA of animal origin

No	Type of diet	Animal protein source labelled	Chicken	Turkey	Beef	Mutton	Pork
1	Complete dry	Hydrolysed soy, hydrolysed chicken liver	+	–	–	–	–
2	Complete dry	Hydrolysed chicken liver	+	–	–	–	–
3	Complete dry	Rabbit	+	+	+	+	+
4	Complete dry	Venison	+	–	+	+	+
5	Complete dry	Horse	–	–	+	+	+
6	Complete dry	Venison	–	–	+	+	+
7	Complete dry	Horse	–	–	+	–	+
8	Complete dry	Rabbit	–	+	–	–	–
9	Complete canned	Horse	–	–	–	–	–
10	Complete canned	Horse	–	–	+	–	–
11	Complementary canned	Horse	–	–	+	–	+
12	Complementary canned	Horse	–	–	+	–	–

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PCR System (Thermo Fisher Scientific; Waltham, MA, USA) using species-specific primers described in previous studies.[9,10] A 25 μL preparation mix was made of 12.5 μL QuantiTect™ Multiplex PCR noROX Master Mix (Qiagen Cat. No. 204745, Qiagen; Hilden, Germany), 5 μL sample-DNA, primer and probes in concentrations listed in Table 2 and the completive amount of water. PCR conditions were followed according to the recommendations of the supplier of the PCR reagents: 15 min initial denaturation at 95°C, followed by 45 cycles of 60 s at 94°C and 60 s at 60°C with data collection.

Results

DNA of at least one animal species not indicated on the label was detected in nine diets (Table 3). The DNA most frequently detected was derived from beef (n = 8) and pork (n = 6). One diet (number 3) was positive for DNA of all five animal species tested. The two hydrolysed diets contained only DNA of the declared protein ingredient, chicken. One over-the-counter canned horse meat diet (number 9) contained no chicken, turkey, beef, mutton or pork DNA.

Discussion

Contamination of nine of 10 over-the-counter dog foods which were marketed as "single protein diets" and "suitable for dogs with food allergies" was demonstrated in this study. There was no contamination of either of the hydrolysed diets, consistent with previously published reports. In one study, mammalian, avian and fish bone fragments were identified in ten of 12 commercial novel protein diets.[6] Significant discrepancies have been detected between label claims and the contents of dog food.[11,12] This supports our hypothesis that over-the-counter diets could be contaminated during the production process.[5,6,11] Insufficient cleaning during slaughtering, transport, delivery and processing in the pet food factory could result in contamination of equipment and, subsequently, the diets. Another hypothesis to explain the dietary contamination is that other ingredients could be a potential source of DNA. Fats and oils could be a source of undeclared animal species because regulations stipulate that they can be derived from vegetable oil or fat of any warm-blooded animal.[13] The positive results in diets 7 and 8 could be attributed to the fat source. The most probable explanation for the presence of chicken DNA in diets 3 and 4 is the inclusion of chicken fat.

PCR testing methods are used for detection of allergenic constituents in human food and have a very high specificity and sensitivity. Cross-reactivity has been reported, however, between the rabbit and sheep primers used in the current study.[10] It is possible that the positive result to sheep DNA in Diet 3 that contained rabbit as the major protein source represented cross-reactivity rather than contamination. However, Diet

8 also contained rabbit as the major protein source and tested negative for sheep DNA.

It is important to highlight that the presence of DNA does not necessarily equate to the presence of an allergen, because allergens are usually >10 KDa.[14] As the over-the-counter foods contained no hydrolysed constituents, it is reasonable to assume that the DNA detected arose from contamination. Our methodology did not permit quantification and we cannot establish the actual amount of DNA from undeclared species contaminating these diets or the clinical relevance. The dose of an allergen needed to cause an allergic reaction has, to our knowledge, not been investigated in dogs.

It is our conclusion that over-the-counter "single protein diets" or canned meat products cannot be recommended for dogs for the diagnosis or management of AFR.[5,6,15] Only a home-prepared diet allows for exact knowledge of the ingredients fed. This is of particular importance during dietary elimination trials for diagnosis or exclusion of AFR. If a homemade diet is not feasible for the owner or is not accepted or tolerated by the animal, then hydrolysed diets are a reasonable alternative.

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Résumé

Contexte – Les régimes d'éviction sur le test de choix pour le diagnostic des réactions alimentaires indésirables (AFR). Une large variété d'aliments industriels disponibles contiennent soit des protéines hydrolysées soit un nouvel ingrédient sensé convenir aux régimes d'éviction. La contamination peut être un des facteurs responsables de l'échec des régimes d'éviction industriels.

Hypothèses/Objectifs – Tester les régimes industriels labellisés comme pouvant convenir aux régimes d'éviction pour les chiens, pour l'ADN des sources animales autres que celles mentionnées par le fabriquant.

Méthodes – Douze produits vétérinaires industriels en croquettes ou humides ont été testés pour leur contenu d' ADN d'origine animale (dinde, poulet, bœuf, mouton et porc) à l'aide de tests PCR.

Résultats – Dans neuf des 10 régimes en vente libre, l'ADN d'un ou de plus d'une espèce animale autre que déclarée par le fabriquant a été identifié. L'ADN le plus fréquemment retrouvé était dérivé du bœuf (n = 8) et du porc (n = 6). Deux régimes hydrolysés ne contenaient que l'ADN des sources animales déclarées.

Conclusions et importance clinique – Les nourritures en vente libre à base « d'une seule protéine animale » ne peuvent pas être recommandées pour le diagnostic d'AFR chez le chien en raison de la contamination pouvant entrainer l'échec du régime d'éviction.

Resumen

Introducción – Las dietas de eliminación son el estándar más fiable para el diagnóstico de reacciones adversas a los alimentos (AFR). Se dispone de una amplia variedad de dietas comerciales que contienen proteínas hidrolizadas o nuevos ingredientes que afirman ser adecuados para dietas de eliminación. La contaminación puede ser un factor que explicaría el fracaso de algunos ensayos de dieta de eliminación comercial.

Hipótesis/Objetivos – Evaluar alimentos comerciales etiquetados como adecuados para dietas de eliminación en perros por la presencia de ADN de origen animal distinto al declarado en la etiqueta.
Métodos – Se investigaron doce productos comerciales de comida seca y enlatada para perros por la presencia ADN de origen animal (pollo, pavo, bovino, cordero y cerdo) mediante pruebas de PCR.
Resultados – En nueve de las diez dietas sin receta, se identificó ADN de una o más especies animales distintas de las declaradas en la etiqueta. El ADN más frecuentemente detectado fueron de bovino (n = 8) y cerdo (n = 6). Dos dietas hidrolizadas sólo contenían ADN de la fuente animal declarada.
Conclusiones e importancia clínica – Las "dietas de proteínas simples" o los productos de carne enlatados sin receta no pueden recomendarse para el diagnóstico de perros con AFR porque la contaminación puede hacer que la dieta de eliminación falle.

Zusammenfassung
Hintergrund – Eliminationsdiäten sind der goldene Standard für die Diagnose von Futtermittelallergien (AFR). Es gibt eine große Vielfalt an kommerziellen Diäten, die entweder hydrolysiertes Protein oder neue Inhaltsstoffe enthalten, die für sich beanspruchen, für Eliminationsdiäten sinnvoll zu sein. Verunreinigung könnte ein Faktor sein, warum kommerzielle Diäten oft nicht zum Erfolg bei Eliminationsdiäten führen.
Hypothese/Ziele – Eine Analyse von kommerziellen Diäten, die als passend für eine Eliminationsdiät bei Hunden deklariert sind, auf DNA von tierischer Herkunft , die nicht jener auf der Verpackung ausgeschriebenen entspricht.
Methoden – Zwölf kommerzielle getrocknete und in Dosen verpackte Hundefuttermittel wurden mittels PCR auf DNA tierischer Herkunft (Huhn, Truthahn, Rind, Schaf und Schwein) untersucht.
Ergebnisse – Bei neun der 10 Diäten, die man einfach im Handel kaufen konnte, wurde DNA von einem oder mehreren Tierspezies gefunden, die nicht auf der Verpackung angeführt waren. Die am häufigsten gefundene DNA stammte vom Rind (*n*=8) und Schwein (*n*=6). Zwei hydrolysierte Diäten beinhalteten nur die DNA der deklarierten Fleischquelle.
Schlussfolgerungen und klinische Bedeutung – Einfach im Handel erhältliche „Einzelproteinfutter" oder Dosenfleischprodukte können nicht für die Diagnose von Hunden mit AFR empfohlen werden, da es durch eine Kontaminierung zum Misserfolg der Eliminationsdiät kommen könnte.

要約
背景 – 除去食試験は、食物有害反応(AFR)の診断のためのゴールドスタンダードである。 加水分解タンパク質あるいは新規成分を含む数多くの市販食が、除去食試験に適しているとして利用可能である。 コンタミネーションは、市販食による除去食試験の失敗の1つの要因となり得る。
仮説/目的 – 犬の除去食試験に適していると表示された市販食のラベルに記載されている以外の動物由来のDNAを検出すること。
方法 – PCRを用いて、動物由来のDNA(鶏肉、七面鳥、牛肉、羊肉および豚肉)について、市販のドライフードおよび缶詰12品目について調査した。
結果 – 市販食10種類のうち9種類は、ラベルに記載されている以外の動物種のDNAが1種類以上同定された。 最も頻繁に検出されたDNAは、牛肉(n = 8)および豚肉(n = 6)であった。 2つの加水分解食は、記載された動物由来のDNAのみを含んでいた。
結論および臨床的な重要性 – 市販の「単一タンパク質食」や缶詰の肉製品は、コンタミネーションによって除去食が失敗する可能性があるため、犬のAFRの診断には推奨できない。

摘要
背景 — 食物排除试验是诊断食物副反应(AFR)的金标准。不同品牌的商品粮包含不论水解蛋白还是新奇成分,都适合做食物排除试验。但污染也许是商品粮食物排除试验失败的原因之一。
目的 — 标签说明可以用于犬食物排除试验的食品,检测其是否存在标签外的动物肉类DNA。
方法 — 12种犬干粮或罐装食品,使用PCR检测动物肉类基因(鸡肉、火鸡、牛肉、羊肉和猪肉)。
结果 — 在十种非处方食物中,有九种食物的一种或更多动物肉类基因未出现在标签说明中。基因最常出现牛肉(n=8)和猪肉(n=6)。两种水解食物中只含有标签说明的动物基因。
结论和临床意义 — 不推荐非处方的"单一蛋白食物"或者罐装肉类,用于诊断犬的食物副反应,因为其他肉类的污染,会导致食物排除试验失败。

Resumo
Contexto – As dietas de eliminação são consideradas o padrão ouro para o diagnóstico de reações adversas a alimentos (AFR). Uma grande variedade de dietas comerciais contendo proteínas hidrolisadas ou ingredientes exóticos estão disponíveis e prometem ser adequadas para dietas de eliminação. Contaminação pode ser um fator que contribui para a falha das dietas comerciais em dietas de eliminação.
Hipóteses/Objetivos – Investigar a presença de DNA de origem animal não declarado no rótulo em dietas comerciais registradas como adequadas para dietas de eliminação para cães.

Métodos – Doze dietas comerciais secas ou enlatadas foram investigadas para DNA de origem animal (frango, peru, bovino, carneiro e suíno) utilizando PCR.
Resultados – Em nove de dez dietas comerciais não terapêuticas, DNA de um ou mais espécies animais além da declarada foi identificado. O DNA mais frequentemente detectado foi de bovinos (*n*=8) e suínos (*n*=6). Duas dietas hidrolisadas continham apenas o DNA da fonte de proteína animal declarada.
Conclusões e importância clínica – Dietas comerciais não terapêuticas contendo apenas uma fonte de proteína animal ou produtos com carne enlatada não devem ser recomendados para o diagnóstico de AFR em cães porque a contaminação pode causar falha na dieta de eliminação.

