

## NICE TO MEET YOU!

— 2022 RECAP—

47,348

the number of patients we tested for allergies

28,295

Patients on treatment

#### Here's a little about us...

Nextmune is the global leader in allergy diagnostics and treatment. We have over 30 years of experience treating with allergen-specific immunotherapy.

We help veterinarians heal their allergy patients in-house.





#### **SUCCESS RATE**

Based on our results, patients experience success rates as high as 90%\* by combining hypo-sensitization therapy & diet change.



For one low price you receive the most comprehensive test, the initial allergy treatment set, and a list of approved diets.

## COMPETITOR RETEST PROGRAM

We'll re-test patients who have been previously tested via serum or intradermal means, at no cost, up to 5 patients per clinic.



# Welcome to the era of MOLECULAR ALLERGY for animals!



Available January 2023

First quantitative macroarray IgE test specifically designed for animals

Over 200 allergen extracts and molecular components

Better identification of allergen cross-reactivities

Fully automated process, higher level of standardisation

With CCD blocking and 2 blocking efficiency detectors





## **Nextmune Pet Allergy Xplorer**

The first molecular serum IgE-specific test for pets

#### THE PROBLEM

Traditionally, allergy testing in veterinary medicine involves placing an allergen extract on an enzyme-linked immunoassay (ELISA) plate to incubate the serum and then administering a reagent that recognizes immunoglobin E (IgE). The resultant color reaction indicates how much IgE is present.

This technique, which is used by veterinary laboratories world-wide, has not changed for decades. However, results can vary considerably, depending on the extract used, and false negatives can occur if clinically relevant protein allergen concentrations are not sufficient. For example, the extract for the house dust mite, a common pet allergen, is made by grinding the mite, adding solvents to release the allergenic proteins and purifying the proteins.



## Thierry Olivry, DrVet, PhD, DipECVD, DipACVD, Scientific Advisor and Project Leader

Dr. Olivry is a graduate of the University of Toulouse, France. He completed a dermatology residency and PhD in comparative pathology at UC Davis and is a Diplomate of both the ACVD and ECVD. Dr. Olivry spent most of his career as a clinician-scientist at NC State University researching allergic and autoimmune skin diseases and now lives in Riga, Latvia.

The house dust mite contains more than 10,000 proteins, but only about 40 that cause an allergic reaction are recognized. This means a low percentage of the allergy-causing proteins are seen when an extract is evaluated, especially if a pet has a low IgE level against a particular allergen. This can easily result in a false negative. In addition, extracts can vary not just between laboratories but also

allergenic extract, making results hard to reproduce.

#### THE SOLUTION

To gain more accurate and sensitive information, tests are needed to identify each individual allergenic protein. Instead of testing for the house dust mite (or any particular allergen) as a whole, techniques are needed to test for the specific proteins that cause an allergic reaction. Human practitioners use molecular allergology to determine the allergens causing problems to provide their patients with a better level of care.

MacroArray Diagnostics launched the Allergy Explorer (ALEX), which provides a sensitization profile for human patients based on a test panel composed of allergen extracts and molecular allergens. Since its founding in 2016, the company has launched two generations of ALEX, offering a panel that covers nearly 100% of the world's relevant allergens. It also developed the Food Xplorer (FOX), to detect IgG-mediated food intolerances.





#### THE INNOVATION

After experiencing allergies myself, and being tested using molecular allergology, I thought the technology could be extremely beneficial to veterinary medicine.

This led to Nextmune partnering with Macro Array Diagnostics to develop the Pet Allergy Xplorer (PAX), the first commercial serological IgE-specific test that uses allergen extracts and molecular components to identify which allergens are affecting pets.

Advantages include:

- Improved reproducibility A state-of-the-art robot builds each ELISA testing array, providing a uniform production method that exceeds current ELISA plate-building reproducibility. In addition, a standardization process is used to make the allergenic extracts, improving reproducibility.
- Increased data Typical allergy testing via serum provides about 90 results, and intradermal testing provides around 60 to 80 results. The PAX cartridge holds 300 positions 100 of which will be extracts and 200 will be molecular components.
- Robots are used throughout the process, decreasing human error. The microarray dots during the plate manufacturing process are dispensed by a robot. In addition, a robot pipettes the serum during the testing phase. Controls are built into the PAX cartridge to ensure the sample has sufficient IgE for testing, and these controls also indicate if the cartridge is used properly.
- Improved treatment The more accurate and sensitive results that PAX provides will improve

the ability to produce an effective hyposensitization therapy that will provide more relief for the pet.

- Improved cross-reactivity identification — Using allergen extracts and molecular components in one test will help identify allergenic cross-reactivity.
- Elucidated polysensitization
   When multiple allergens cause a reaction, PAX will help identify the primary offenders.
- Individualized results The results provided to the veterinarian will be specific to the region where they live, as well as the pet's species.
- Improved accuracy PAX uses a single well-characterized anti-IgE monoclonal antibody to detect

pertinent allergens are identified to prevent confusion.

■ Ongoing development — The cartridges currently contain the allergenic components and extracts that prevailing research indicates are clinically relevant. As data is gathered through testing, other allergenic components may be discovered. For example, if an extract continues to indicate positive while the individual molecular components indicate negative, we need to determine if another unidentified component is present or a cross reactivity is occurring. This data will help us characterize molecules to add in future versions, revolutionizing the research in pet allergies.

THE DIFFERENCE MAKER

Pet Allergy Xplorer (PAX) is the first commercial serological IgE-specific test that uses allergen extracts and molecular components to identify which allergens are affecting pets.

pet IgE, ensuring a detection level. PAX also uses technology to block cross-reactive carbohydrate determinants (CCD). In some cases, CCDs bind to IgE receptors, creating false positives. The PAX technology uses a blocking agent to prevent this binding. Allergy tests that do not use CCD blockers identify numerous allergens, many of which are irrelevant. This technology ensures only the

Nextmune is the only veterinary diagnostic laboratory currently using molecular allergology. This next-generation test will allow veterinarians to more accurately and sensitively diagnose allergic pets to facilitate treatment strategies. The initial launch for dogs is scheduled for January 2023, followed by tests for cats and horses.

## **Molecular Allergology:**

## The future of IgE sensitization detection



	Common name	Scientific name	Extracts & Components
			Cyn d*
	Bermuda grass	Cynodon dactylon	rCyn d 1
	Orchard grass	Dactylis glomerata	Dac g *
	Meadow fescue	Festuca pratensis	Fes p *
	Perennial ryegrass	Lolium perenne	rLol p 1
N N	Timothy	Phleum pratense	rPhl p 1
I O I			rPhl p 2
SS F			rPhl p 5.0101
3RASS POLLEN			rPhl p 6
O			rPhI p 7
			rPhI p 12
	June/Kentucky blue grass	Poa pratensis	Poa p *
	Ryegrass, cultivated	Secale cereale	Sec c_pollen *
	Acacia	Acacia Mimosa	Aca M*
			Aln g*
	Alder	Alnus glutinosa	Aln g 1
		9	Aln g 4
			Bet v*
		Datula	Bet v 1
	Birch	Betula verrucosa	Bet v 2
			Bet v 6
			Cor a pollen*
	Hazelnut	Corylus avellana	Cor a 1.0103
	Arizona Cypress	Cupressus arizonica	Cup a 1
	Cypress	Cupressus sempervirens	Cup s *
TREE POLLEN	Beech	Fagus sylvatica	rFag s 1
POL	Ash	Fraxinus	Fra e *
Ш	Asn	excelsior	rFra e 1
Ā	Walnut	Juglans regia	Jug r pollen*
	Juniper	Juniperus ashei / virginiana	Jun a / Jun v
	Privet	Ligustrum	Lig v *
	Mulhorry	Vulgare Marus rubra	Mor r*
	Mulberry	Morus rubra	Ole e *
			nOle e 1
	Olive tree	Olea Europaea	rOle e 7
			rOle e 9
	Poplar/ Cottonwood	Populus nigra	Pop n *
	Elm	Ulmus campestris	Ulm c *
	Careless/ Pigweed	Amaranthus retroflexus	Ama r*
	Ragweed		Amb a *
Z		Ambrosia artemisiifolia	rAmb a 1
OLL			rAmb a 4
D			Art v *
WEED POLLEN	Mugwort	Artemisia vulgaris	rArt v 1.0101
>		voigaris	rArt v 3.0201
		Changad	Che a *
	Lamb's quarter	Chenopodium album	rChe a 1
			. Sile d I

	Common	Scientific	Extracts &
	name	name	Components
	Wall pellitory	Parietaria judaica	Parj*
	Ribwort /	Plantago	rPar j 2 Pla I *
Ä	Plantain	Plantago lanceolata	rPla I 1
OLL			
WEED POLLEN	Dock/Sorrel	Rumex crispus / acetosella	Rum c / * Rum a
>	Russian thistle	Salsola kali	Salk*
			rSal k1
	Nettle	Urtica dioica	Urt d *
			rCan f1
			rCan f 2
			nCan f 3
			rCan f 4
	Dog	Canis familiaris	rCan f 6
			Can f_maleurine (including Can f 5) *
DANDER & EPITHELIA			rCan f Fel d 1 like
k EPIT	Guinea pig	Cavia porcellus	rCav p 1
ER 8			rEqu c 1
AND	Horse	Equus caballus	nEqu c 3
Δ			rEqu c 4
			rFel d 1
	Cat	Felis domesticus	rFel d 2
			rFel d 4
	Mouse	Mus musculus	rMus m 1
			rOry c 1
	Rabbit	Oryctolagus cuniculus	rOry c 2
			rOry c 3
	Acarus siro	Acarus siro	Aca s *
		Blatella germanica	rBla g 1
	German		rBla g 2
	cockroach		rBla g 4 rBla g 5
			rBla g 9
	Cat flea	Ctenocephali- des felis	Cte f 1
			Der f *
HES			rDer f 1
JAC	Dermatophagoi- des farinae	Dermatopha- goides farinae	rDer f 2
XRC	des farillae	goides rarinde	rDer f 15
000			rDer f 18
ω 0			Der p *
MITES & COCKROACHES			rDer p1
_			rDer p 2
			rDer p 5
	Dermatopha-	Dermatopha-	rDer p 7
	goides pteronys- sinus	goides pte- ronyssinus	rDer p 10
			rDer p 11
			rDer p 20
			rDer p 21
			rDer p 23

			The Party of the P	
	Common name	Scientific name	Extracts & Components	
	Glycyphagus domesticus	Glycyphagus domesticus	rGly d 2	
D'F	Lepidoglyphus		Lep d *	
00	destructor		rLep d 2	
MITES CONT'D	Tyrophagus	Tyrophagus putrescentiae	Tyr p *	
	putrescentiae	Tyrophagus putrescentiae	rTyr p 2	
	Alternaria alternata	Alternaria alternata	Alt a *	
			rAlt a 1	
			rAlt a 6	
			Asp f *	
			rAsp f 1	
	Aspergillus fumigatus	Aspergillus fumigatus	rAsp f 3	
STS	Torringatos	romigatos	rAsp f 4	
YEA			rAsp f 6	
⊗ ∨	Cladosporium	Cladosporium	Cla h *	
MOLDS & YEASTS	herbarum	herbarum	rCla h 8	
Σ	Malassezia pachydermatis	Malassezia	Mala p *	
			rMala s 1	
			rMala s 9	
	Malassezia sympodialis	Malassezia sympodialis	rMala s 5	
	,p = 5		rMala s 6	
			rMala s 11	
			Api m *	
			nApi m 1	
	Honey bee		Api m 2	
	venom		Api m 3	
			Api m 5	
OM9	Long-headed		rApi m 10	
NSECT VENOMS	wasp venom		Dol spp *	
CT	Paper wasp venom	Polistes dominulus	Pol d *	
ZSE	venom	Solenopsis	rPol d 5	
=	Fire ant venom	richteri & Solenopsis invicta	Sol spp *	
	Common	Vespula	Ves v *	
	Common wasp venom	vulgaris	rVes v 1	
			rVes v 5	





#### **Molecular Allergology:**

### The future of IgE sensitization detection



	C	Scientific	Extracts &
	Common name	name	Components
	Oat	Avena sativa	Ave s *
	Buckwheat	Fagopyrum	Fag e *
	0 0	esculentum	nFag e 2
	Sunflower seed	Helianthus annuus	Hel a *
	Barley	Hordeum vulgare	Hor v *
	Rice	Oryza sativa	Ory s Ory s_ GLUB1
	Millet	Panicum miliaceum	Pan m *
	Rye, cultivated	Secale cereale	Sec c_flour
	Wheat	Triticum aestivum	Tri a * rTri a 14 rTri a 19 nTri a aA_TI
	Corn, cereal	Zea mays	Zea m * rZea m 14 Zea m_ GBSSI
	Apple	Malus domestica	rMal d 1 nMal d 2 rMal d 3
FOODS	Peanut	Arachis hypogaea	nAra h 1 rAra h 2 nAra h 3 rAra h 5 rAra h 6 rAra h 8 rAra h 9 rAra h 15
	Soy	Glycine max	Gly m * rGly m 4 rGly m 5 nGly m 6 nGly m 8
	Lentil	Lens culinaris	Len c * Len c 1 Len c 2 Len c 3
	Pea	Pisum sativum	Pis s * Pis s 1 Pis s 2 Pis s 3
	Cow's milk Bos domesticus		Bos d_milk *  nBos d 4  nBos d 5  nBos d 8
	Egg white	Gallus domesticus	Gal d_white *  nGal d 1  nGal d 2  nGal d 3  nGal d 4

Common	Scientific	Extracts &
name	name	Components  Gal d_yolk*
Egg Yolk	Gallus Domesticus	nGal d 5
		Bos d
		meat *
		nBos d 6
Beef	Bos domesticus	Bos d 7
	domesticos	Bos d_ ACTA1
F		Bos d_
		LDHA
Horse	Equus caballus	Equ c_ meat *
	cabanos	Ory_meat *
		Ory c_CKM
		Ory c_
Rabbit	Oryctolagus	GAPDH
	spp.	Ory c_ PGM1
		Ory c_PKM
		Ory c_TPI1
		Ovi a_meat
Lamb	Ovis aries	*
		Ovi a_lgG
Pig	Sus	Sus d_ meat *
9	domesticus	rSus d1
		Gal d_meat
	Gallus	*
Chicken	domesticus	Gal d 7
		Gal d_PKM
<b>-</b> .	Meleagris	
Turkey	gallopavo	Mel g *
Mealworm	Tenebrio molitor	Ten m *
	Clupea	Clu h *
Herring, Atlantic	harengus	rClu h1
		Gad m *
Cod, Atlantic	Gadus	nGad m 1
Coa, Adantic	morhua	Gad m 2+3
		Gad m 4
		Sals*
		Sals1
		Sals 2
Salmon, Atlantic	Salmo salar	Sals 3
		Sals 4
		Sals 7
		Sals 8
	Scomber	Sco s *
Mackerel, Atlantic	scombrus	rSco s 1
_	Thunnus	Thu a *
Tuna	albacares	Thu a 1
Carrot	Daucus	Dau c *
Carrot	carota	rDau c 1
Tomato	Solanum	Sola I *
	lycopersicum	rSola I 6

#### What is molecular allergology?

Molecular allergology is a state-ofthe-art approach to the detection of sensitisations, whereby defined single allergen components are used for the determination of specific IgE in place of traditionally-used allergen extracts.

The molecular components are recombinant proteins that provide a higher level of standardization than allergen extracts and enable a more precise identification of IgE sensitisations.

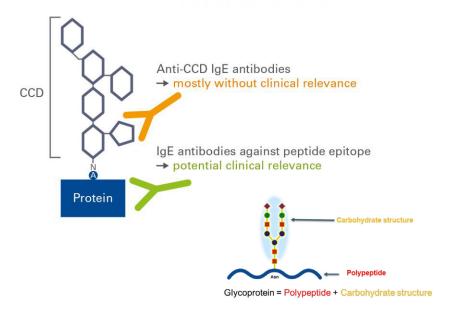
Molecular allergology tests are powerful tools that help pinpoint allergy triggers, thus facilitating risk assessment and therapy decisions.

Nextmune is bringing you the first molecular allergology platform for animals, the next-generation in allergen-specific IgE serology.



# CCDs and their role in allergy diagnostics





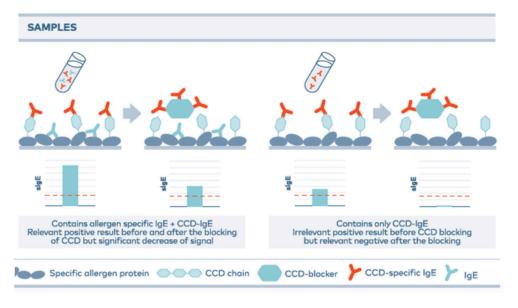
#### What are CCDs?

Carbohydrate Cross-Reactive
Determinants (CCDs) are protein-linked
carbohydrate structures responsible for
a part of the cross-reactivity phenomenon.

Specific IgE (sIgE) have been detected in dogs and cats versus several proteins enriched in CCDs as Bromelain and Peroxidase. About 30% of samples haves IgE vs CCDs. CCD-detection is inhibited by commercial CCD-blockers composed by CCDs from Bromelain in vitro coupled to Human Serum Albumin (HSA).

#### How does CCD blocking work?

Experiments in Europe show that CCDs (BRL, HRP and/or CCD blocker) used as inhibitor affects specifically those allergens which contain them however other allergens, i.e. mites, are not affected by CCD-blocking. Our CCD-blocking method is 100% specific for allergens containing CCDs.



#### **Other Testing Considerations**

Nextmune's ELISA-based serum test uses proprietary methods in order to produce a highly specific result. On top of being the only fully automated allergy testing laboratory in the US, Nextmune has also moved away from the commonly-used bovine serum assay and invested in fully synthetic reagents. We have also created buffering agents that bind to the competing IgG, IgA and IgM in serum, reducing interference in our testing. These 2 applications have resulted in a 20% reduction in false positives.

In order to maintain a leadership position in the allergy testing space, Nextmune has recently developed a new blocking agent which also reduces interference created by cross-reactive carbohydrate determinate antibodies. These are also known as CCDs or anti-CCDs. The CCDs in the serum bind to the allergen protein in a similar way to IgE therefore by blocking the CCDs, we are able to get the true IgE signal from the serum.



# TEST & TREAT PACKAGE

One Low Price

Save money & time by packaging the allergy testing and treatment together!

**PACKAGE INCLUDES:** 



**Pet Allergy Xplorer Complete** 

plus

one initial hyposensitization treatment set

initial therapy set options include: single or double set, sublingual or subcutaneous

THE ROAD TO ALLERGY RELIEF STARTS HERE!



of patients improve with testing alone

**50%** 

of patients improve with dietary change

66%

of patients improve with hyposensitization

90%

of patients improve with dietary change & hyposensitization

ORDER TODAY at nextmune.us

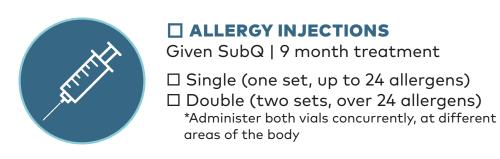
## HYPOSENSITIZATION TREATMENT SET ORDER FORM



Date	Animal's First Name
Address	☐ Canine ☐ Feline ☐ Equine
City State Zip	Age Date
Phone ()	Weight:
Purchase Order #:	Sex:

For additional information about treatment visit Nextmune.com/tx

#### **CHOOSE TREATMENT OPTION BELOW-**







REFILL ONLY - Same as previous order Please note: treating for more than 24 allergens requires a double treatment set

## **HOW TO SUBMIT A SAMPLE**



#### 1. BLOOD DRAW

- 3-5 ml of serum
- Spin down & pour into Nextmune tube

#### If you don't have a centrifuge:

- 1. Leave sample in red top tube until blood coagulates
- 2. Pour serum in Nextmune tube, ensuring red cells aren't transferred
- 3. Submit

\*If you don't have plastic tubes, use a red top or tiger top



#### 2. ORDER FORMS

- Complete an order & history form for each submitted sample
- Submitting multiple samples? Properly label samples & corresponding order forms



#### 3. SHIP SAMPLE

- Generate & print a prepaid FedEx shipping label
- Package sample & submission forms together
- Call 1.800.463.3339 or visit FedEx.com to schedule pick up
- Do not ship samples with dry ice or ice packs
- Samples arrive to the lab within 2 days



#### 4. REVIEW RESULTS

- Emailed within 72-hours after receiving the sample
- Followed by a result booklet via mail in about 7-10 business days
- For help interpreting results & pursuing treatment, call us at (800) 553.1391







## **DERM HISTORY FORM**

Please complete and return with order form

Today's Date:			Veterinarian:
Animal's Name:			Clinic:
Animal's Age:	Sex:		☐ Canine (PAX) ☐ Feline (SPOT) ☐ Equine (SPOT)
Owner Name:			Breed:
1. Clinical Symptoms:  Atopic dermatitis  Atopic dermatitis  Urticaria Ang Pruritus without Food-induced ga  Which Type Feline atopic skin Asthma	s (food-induced ioedema	d) Anaphylaxis	4. If food or venom allergy, how long did it take for the signs to flare after the oral food challenge or the insect sting??  Allergen 1
Insect bite hypers  2. Usual seasonality of s  Non-seasonal	ymptoms:	□ Summer	Allergen 3
Pollens: 🗖 Trees	□ Winter  ed to cause the se mark & list) □ Grasses	e last flare:	5. At the time of sample collection, what is the severity of the following symptoms on a scale from 0 (none) to 10 (severe)??
☐ Weeds Indoor: ☐ Mites	☐ Molds		Skin Lesions
Foods:	☐ Poultry☐ Tubers☐ Cereal☐ Others		ltch
Hymenoptera venoms:	□ Wasps	□ Others	Digestive Signs (vomiting/diarrhea)
Insects:	☐ Others		00010203040506070809010





## **ALLERGY ORDER FORM**

2801 S. 35<sup>th</sup> St. | Phoenix, AZ 85034 | 800.553.1391 | www.nextmune.com

EFFECTIVE 01.01.2023 √1	Nextmune Only Date Rcvd:
·	s fully as possible, including history form.  cions. No Steroid Withdrawal required // 3-5 mls of Serum
Veterinarian	Animal's First Name
Clinic	Last Name
Address	☐ Canine (PAX) ☐ Feline (SPOT) ☐ Equine (SPOT)  Breed
CityStateZip	
Phone ( ) Fax ( )	Weight:
Results Emailed to:	Sex: □ Male □ Neutered □ Spayed
Purchase Order #:	Previously tested with Nextmune   Spectrum   ACTT
	,
ALLERGY TESTING  TEST & TREAT PACKAGE SubQ I Includes 1 PAX COMPLETE OR SPOT Platinum+ Allerg	njections
	y lest & Initial Treatment of your choice
□ PAX COMPLETE (canine only)	SPOT PLATINUM+ (feline/equine)
□ PAX COMPLETE (canine only)  ADD-ON OPTIONS	
,	□ SPOT PLATINUM+ (feline/equine)
ADD-ON OPTIONS  SUPPLEMENTAL PANEL (canine only)	□ SPOT PLATINUM+ (feline/equine)  ADD-ON OPTIONS  □ EXPANDED FOOD (feline only)
ADD-ON OPTIONS  SUPPLEMENTAL PANEL (canine only) additional allergens unavailable via PAX	☐ SPOT PLATINUM+ (feline/equine)  ADD-ON OPTIONS  ☐ EXPANDED FOOD (feline only) additional commercial pet food ingredients
ADD-ON OPTIONS  SUPPLEMENTAL PANEL (canine only) additional allergens unavailable via PAX  INDIVIDUAL PAX PANELS	☐ SPOT PLATINUM+ (feline/equine)  ADD-ON OPTIONS  ☐ EXPANDED FOOD (feline only) additional commercial pet food ingredients  INDIVIDUAL SPOT PANELS
ADD-ON OPTIONS  SUPPLEMENTAL PANEL (canine only) additional allergens unavailable via PAX  INDIVIDUAL PAX PANELS  ENVIRONMENTAL PANEL  FOOD PANEL	□ SPOT PLATINUM+ (feline/equine)  ADD-ON OPTIONS  □ EXPANDED FOOD (feline only) additional commercial pet food ingredients  INDIVIDUAL SPOT PANELS  □ REGIONAL PANEL □ FOOD PANEL (feline only)
ADD-ON OPTIONS  SUPPLEMENTAL PANEL (canine only) additional allergens unavailable via PAX  INDIVIDUAL PAX PANELS  ENVIRONMENTAL PANEL  SPECIAL ORDER ALLERGENS	□ SPOT PLATINUM+ (feline/equine)  ADD-ON OPTIONS  □ EXPANDED FOOD (feline only) additional commercial pet food ingredients  INDIVIDUAL SPOT PANELS  □ REGIONAL PANEL □ FOOD PANEL (feline only)  □ SPECIAL ORDER ALLERGENS
ADD-ON OPTIONS  SUPPLEMENTAL PANEL (canine only) additional allergens unavailable via PAX  INDIVIDUAL PAX PANELS  ENVIRONMENTAL PANEL  FOOD PANEL  SPECIAL ORDER ALLERGENS  1	SPOT PLATINUM+ (feline/equine)  ADD-ON OPTIONS  EXPANDED FOOD (feline only) additional commercial pet food ingredients  INDIVIDUAL SPOT PANELS  REGIONAL PANEL

#### **DERMATOLOGICAL CARE**

www.Nextmune.com/usderm

□ Contact our practice regarding dermatological products for this patient