



A Commitment to Diagnostics

# CAST<sup>®</sup> Allergens

for

CAST<sup>®</sup> ELISA  
Flow CAST<sup>®</sup>  
Flow CAST<sup>®</sup> highsens

Drug Allergens



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## Intended Use

BÜHLMANN CAST® Allergens are optimized for *in vitro* Basophil Activation using BÜHLMANN CAST® assays: CAST® ELISA (EK-CAST), Flow CAST® (FK-CCR) and Flow CAST® highsens (FK-HSBAT).

CAST® Allergens are not included in BÜHLMANN CAST® assays. They are provided upon request. Refer to the allergen list.

## Instruction for Use

The following instructions are intended for the following groups of drug allergens and mixes of them (refer to TOC page 3).

- Adjuvants
- Analgesics
- Antibiotics
- Antiseptics
- Contrast Media
- Local Anesthetics
- Myorelaxants
- Proton Pump Inhibitors (PPI)

CAST® drug allergens are delivered lyophilized. Before usage in CAST® assays, they are to be reconstituted with test specific Stimulation Buffer: CAST® ELISA: B-CAST-STB, Flow CAST®: B-CCR-STB and Flow CAST® highsens: B-CCR-CSB.

- Add 250 µl Stimulation Buffer into the vial and vortex until the lyophilized material has completely dissolved.
- For some allergens we recommend an additional dilution with Stimulation Buffer (refer to the paragraph „Additional dilutions“ in the allergen specifications).
- E.g. an „additional dilution“ of 1:5 is carried out by adding 160 µl Stimulation Buffer to 40 µl allergen solution.
- For stimulation of cells, use these dilutions according to the respective CAST® IFU.

Remark: Some individuals react positive either at high or at low allergen concentrations, whereas others react positive over a broad range of concentration.

## Storage and Stability

Unopened CAST® Allergens are to be stored at the temperature specified on the label until to the expiration date.

**IMPORTANT:** Reconstituted or diluted allergens must not be stored and used again!

## Optimal time period for stimulation tests

For optimal results, CAST® assays should be run between 3 and 12 weeks after an allergic reaction to the presumed allergen [Lit.8], although specific basophil reaction is often being persistent over a longer time period.

Blood samples must be drawn for CAST® assays before carrying out a skin test or *in vivo* provocation with the presumed allergen as *in vivo* exposure to an allergen can cause an activation of the leucocytes.

## Limitations

A negative CAST® assay result for a specific allergen does not exclude potential (even serious) clinical symptoms. Individuals who developed „allergic“ reactions towards protein or drug allergens in the past and whose CAST® assay was negative, should thus be verified with additional methods like the *in vivo* provocation or skin test before a drug or allergen is administered.

## Concentrations and cut-off

Concentrations and cut-off of these allergen groups were optimized regarding maximum specificity und sensitivity. Concentrations and cut-offs of individual allergens are reported in the specifications of the allergens (refer to TOC page 3).

For Flow CAST®, BÜHLMANN recommends the application of the stimulation index (SI) as an additional diagnostic criterion. The SI is defined as the ratio of allergen specific basophil activation and background activation.

## Remarks:

- In order to apply allergen specific cut-offs, QC criteria published in the CAST® instructions must be fulfilled.
- Cut-offs should serve only as recommendations. Clinically defined cut-offs should be established by each laboratory or through clinical studies.

## Recommendations how to use CAST® assays in the diagnosis of drug allergies

The diagnosis of drug allergies is a complex matter including heterogeneous symptoms and a diverse pathophysiology. Thus the following recommendations should be considered when using CAST® assays in order to diagnose drug allergies. These recommendations should be considered only as general guidelines.

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### Clinical pictures, justifying the application of CAST® assays

Direct "allergic" reactions *in vivo* after exposure to drugs or chemicals can either be IgE or non-IgE mediated (pseudo-allergic reactions) stimulation of effector cells (e.g. basophils, mast cells, and eosinophils). CAST® assays may serve as a model for the above mentioned reactions by which the individuals' leucocytes are stimulated *in vitro*. As for CAST® assays pure allergens and a defined but artificial buffer system are applied, the method can only serve as a simplified model of the real *in vivo* conditions.

CAST® assays were optimized for the detection of immediate type allergic reactions (Type I) and pseudo allergic reactions. CAST® assays are not applicable for the diagnosis of delayed type allergies (e.g. Type IV reactions). Thus, these assays should be applied only for immediate type allergic reactions, especially if one of the following symptoms is detected:

- Anaphylactic or anaphylactoide reactions
- Rhino conjunctivitis
- Asthma bronchiale
- Urticaria / Angioedema
- Gastrointestinal reactions

### Clinical pictures that do not justify the application of CAST® assays

CAST® assays should not be used for the diagnosis of T-cell mediated reactions. Based on the pathogenetical mechanism it is not recommended using CAST® assays routinely for the following patient groups:

- Maculopapular and pustular exanthema
- Vasculitis
- Allergic contact dermatitis
- Bullous exanthemas such as Stevens-Johnsons Syndrome and Lyell's disease

### Use of allergens not available at BÜHLMANN

Allergens which are not available at BÜHLMANN can be used in CAST® assays. The following restrictions should be observed:

- No allergens bound to matrices (solid or liquid)
- No allergen preparations containing sulfido-leukotrienes
- No allergen preparations containing cytotoxic ingredients (stabilizers, preservatives), like e.g. phenol, glycerol, sodium azide or merthiolate (thimerosale)

An instruction how to make allergen extracts which are not available at BÜHLMANN, is available upon request. Ask your local distributor or contact BÜHLMANN Laboratories AG directly.

## Anwendungszweck

Die BÜHLMANN CAST® Allergene sind optimiert für die *in vitro* Leukozyten Stimulation in den BÜHLMANN CAST® Tests: CAST® ELISA (EK-CAST), Flow CAST® (FK-CCR) und Flow CAST® highsens (FK-HSBAT).

CAST® Allergene sind als einzelne Reagenzien erhältlich und sind kein Bestandteil der CAST® Test Kits.

## Gebrauchsanweisung

Die nachfolgende Anleitung gilt für die folgenden Medikamenten-Allergene sowie deren Allergengemische (siehe Inhaltsverzeichnis auf Seite 3):

- Adjuvantien (Adjuvants)
- Schmerzmittel (Analgesics)
- Antibiotika (Antibiotics)
- Antiseptika (Antiseptics)
- Röntgenkontrastmittel (Contrast Media)
- Lokalanästhetika (Local Anesthetics)
- Muskelrelaxantien (Myorelaxants)
- Protonenpumpeninhibitoren (PPI)

CAST® Medikamenten-Allergene werden in getrockneter Form geliefert. Vor dem Gebrauch der Allergene in den CAST® Tests werden diese mit dem Test spezifischen Stimulationspuffer (CAST® ELISA: B-CAST-STB, Flow CAST®: B-CCR-STB und Flow CAST® highsens: B-CCR-CSB) aufgelöst:

- Geben Sie 250 µl Stimulationspuffer in das Fläschchen mit dem getrockneten Allergen und vortexen Sie bis sich alles gelöst hat.
- Bei einigen Allergenen empfehlen wir eine zusätzliche Verdünnung mit Stimulationspuffer anzusetzen (siehe Angabe unter „Additional dilutions“ bei den Allergenbeschreibungen).
- Bei einer zusätzlichen Verdünnung von 1:5 („Additional dilution“) mischen Sie zum Beispiel 40 µl Allergen Lösung mit 160 µl Stimulationspuffer.
- Setzen Sie diese Lösung(en) gemäss der entsprechenden CAST® Testarbeitsanleitung zur Stimulation der Zellen ein.

Bemerkung: Einzelne Patienten zeigen nur eine positive Stimulation entweder bei hohen oder tiefen Allergenkonzentrationen, während andere über einen breiten Konzentrationsbereich positiv reagieren.

## Lagerung und Haltbarkeit

Ungeöffnete CAST® Allergene können bei der auf der Etikette angegebenen Temperatur bis zum Verfallsdatum gelagert werden.

**WICHTIG:** Aufgelöste oder verdünnte Allergene sollen nicht aufbewahrt und wieder verwendet werden!

## Zeitpunkt der Patientenmessung

Der optimale Zeitraum zur Durchführung eines CAST® Tests liegt zwischen 3 und 12 Wochen nach einer allergischen Reaktion auf ein vermutetes Allergen [Lit.8]. Dies, obwohl die spezifische Reaktivität der basophilen Zellen oft auch über einen noch längeren Zeitraum erhalten bleibt.

Die Blutproben für die CAST® Tests müssen abgenommen werden, bevor ein Hauttest oder eine *in vivo* Provokation mit dem verdächtigen Allergen durchgeführt wurde. Die *in vivo* Exposition gegenüber einem Allergen kann eine generelle Aktivierung der Patientenleukozyten zur Folge haben

## Einschränkungen

Ein negatives CAST® Test Resultat für ein spezifisches Allergen schliesst die Möglichkeit einer (auch schweren) klinischen Reaktion beim Patienten nicht aus. Patienten, die früher „allergische“ Reaktionen gegenüber Protein- oder Medikamenten-Allergenen gezeigt haben und die ein negatives CAST® Test Resultat aufweisen, sollten deswegen, wenn möglich, mit weiteren Methoden wie *in vivo* Provokation oder Hauttestung getestet werden, bevor ein Medikament verabreicht wird oder der Patient dem Allergen ausgesetzt wird.

## Konzentrationen und Grenzwerte

Die Konzentrationen und Grenzwerte (cut-off) dieser Allergengruppe wurden optimiert bezüglich höchster möglicher Spezifität und Sensitivität. Die Konzentrationen und Grenzwerte der einzelnen Allergene finden Sie bei der Beschreibung der einzelnen Allergene (siehe Seite 3, Inhaltsverzeichnis).

Beim Flow CAST® wird die Anwendung eines Stimulationsindex (SI) als zusätzliches Kriterium durch BÜHLMANN vorgeschlagen. Der SI ist definiert als der Quotient aus allergenspezifischer Basophilenaktivierung und Basalwert.

## Hinweise:

- Um die Allergen spezifischen Grenzwerte anzuwenden, müssen die in der CAST® Testarbeitsanleitung beschriebenen Qualitätskontroll - Kriterien erfüllt werden.
- Diese Grenzwerte dürfen nur als Empfehlungen betrachtet werden. Klinisch relevante Grenzwerte sollten durch jedes Labor oder durch weitere Studien ermittelt werden.

## Empfehlungen für den Gebrauch der CAST® Tests in der Diagnostik von Medikamenten-Allergien

Die Diagnostik von Medikamenten-Allergien ist eine komplexe Thematik mit heterogenen Symptomen und Pathophysiologie. Deshalb sollten die folgenden Empfehlungen bei der Anwendung der CAST® Tests zur Abklärung von Medikamenten-Allergien berücksichtigt werden. Diese Empfehlungen dürfen aber nur als generelle Richtlinien verstanden werden.

### Klinische Bilder, die die Anwendung der CAST® Tests rechtfertigen:

Direkte "allergische" Reaktionen *in vivo* nach der Exposition mit Medikamenten und Chemikalien können entweder durch IgE oder nicht-IgE (sogenannte Pseudoallergien) vermittelte Stimulation von Effektorzellen (z.B. Basophile, Mastzellen und Eosinophile) ausgelöst werden. Die CAST® Tests können als Modell für die oben erwähnten Ereignisse betrachtet werden, bei welchen die Patienten Leukozyten *in vitro* stimuliert werden. Da in den CAST® Tests reine Allergene und ein definiertes, aber künstliches Puffer System verwendet werden, kann die Methode nur als ein vereinfachtes Modell der *in vivo* Situation betrachtet werden.

Die CAST® Tests wurden für die Detektion von allergischen (Typ I) und pseudoallergischen Soforttyp Reaktionen optimiert. Die CAST® Tests sind nicht ausgerichtet für die Diagnose von allergischen Spättyp Reaktionen (z.B. Typ IV Reaktionen). Aus diesem Grunde sollten die Tests nur bei Soforttyp Reaktionen angewendet werden, insbesondere bei den folgenden klinischen Symptomen:

- Anaphylaktische oder anaphylaktoide Reaktionen
- Rhinokonjunktivitis
- Asthma bronchiale
- Urticaria / Angioödem
- Gastrointestinale Reaktionen

### Klinische Bilder, die die Anwendung der CAST® Tests nicht rechtfertigen:

Die CAST® Tests sind nicht gedacht für die Anwendung bei T-Zell vermittelten Reaktionen. Aufgrund der bekannten pathogenetischen Mechanismen wird nicht empfohlen, die folgenden Patientengruppen routinemässig mit den CAST® Tests zu testen:

- Makulopapulöses und pustulöses Exanthem
- Vaskulitis
- Allergische Kontaktdermatitis
- Bullöse Exantheme, wie Stevens-Johnsons Syndrom und Lyell's Krankheit.

### Einsatz von Allergenen, die nicht von BÜHLMANN erhältlich sind

Eigene Allergenextrakte können verwendet werden. Es sollten dabei die folgenden Einschränkungen beachtet werden:

- keine Matrix gebundenen Allergene (fest oder flüssig)
- keine Allergenpräparationen, die Sulfidoleukotriene enthalten
- keine Allergenpräparationen, die zytotoxische Inhaltsstoffe (Stabilisatoren, Konservierungsstoffe) enthalten, wie z.B. Phenol, Glycerol, Natriumazid oder Merthiolat (Thimerosal).

Eine Anleitung zur Herstellung eigener Allergenextrakte für die Anwendung in den CAST® Tests ist auf Anfrage erhältlich. Fragen Sie Ihren lokalen Vertreter oder kontaktieren Sie direkt BÜHLMANN Laboratories AG.

## Utilisation prévue

Les allergènes CAST® de BÜHLMANN sont optimisés pour l'activation des basophiles *in vitro* dans les tests CAST® de BÜHLMANN : CAST® ELISA (EK-CAST), Flow CAST® (FK-CCR) et Flow CAST® highsens (FK-HSBAT).

Les allergènes CAST® ne sont pas fournis dans les kits de dosage CAST® de BÜHLMANN, mais vendus séparément. Consulter la liste des allergènes.

## Mode d'emploi

Les instructions suivantes se réfèrent aux groupes de médicaments allergènes ci-dessous et à leurs mélanges (consulter le sommaire à la page 3).

- Adjuvants (Adjuvants)
- Analgésiques (Analgesics)
- Antibiotiques (Antibiotics)
- Antiseptiques (Antiseptics)
- Agents de contraste (Contrast Media)
- Anesthésiques locaux (Local Anesthetics)
- Myorelaxants (Myorelaxants)
- Inhibiteur de la pompe à protons (IPP)

Les médicaments allergènes CAST® sont vendus sous forme lyophilisée. Ils doivent être reconstitués dans le tampon de stimulation correspondant au test avant emploi dans les tests CAST® : CAST® ELISA : B-CAST-STB, Flow CAST® : B-CCR-STB et Flow CAST® highsens : B-CCR-CSB.

- Ajouter 250 µl de tampon de stimulation dans le flacon. Vortexer jusqu'à dissolution totale de la substance lyophilisée.
- Dans le cas de certains allergènes, nous recommandons une dilution supplémentaire dans le tampon de stimulation. Consulter le paragraphe « Additional dilutions » dans les spécifications de l'allergène.
- Par exemple, une dilution au 1/5 («Additional dilution») est réalisée en ajoutant 160 µl de tampon de stimulation à 40 µl de solution d'allergène.
- Pour la simulation de cellules, utiliser ces dilutions conformément aux instructions d'utilisation du test CAST® correspondant.

Remarque : certains individus ne réagissent positivement à l'allergène qu'à concentration faible ou forte, tandis que d'autres réagissent positivement sur une large plage de concentrations.

## Stockage et stabilité

Conserver les allergènes CAST® non ouverts à la température indiquée sur l'étiquette, sans dépasser la date de

péremption.

**IMPORTANT :** ne jamais stocker ni réutiliser un allergène reconstitué ou dilué !

## Délai optimal pour les tests de stimulation

Pour obtenir des résultats optimaux, il convient de mettre en œuvre les tests CAST® 3 à 12 semaines après la réaction allergique à l'allergène présumé [Lit.8], bien que la réaction spécifique des basophiles puisse être observée sur une durée plus importante.

Prélever les échantillons sanguins pour les tests CAST® avant le test cutané ou la provocation *in vivo* avec l'allergène présumé. En effet, toute exposition *in vivo* à un allergène peut entraîner l'activation des leucocytes.

## Limites

Un résultat négatif au test CAST® pour un allergène spécifique n'écarte pas la possibilité de symptômes cliniques, y compris graves. Pour les individus ayant présenté par le passé des réactions « allergiques » vis-à-vis de protéines ou de médicaments allergènes dont le test CAST® se révèle négatif, le résultat doit être vérifié par d'autres méthodes, comme la provocation *in vivo* ou un test cutané avant l'administration d'un médicament ou d'un allergène.

## Concentrations et seuils

Les concentrations et les valeurs seuils (cut-offs) des présents groupes d'allergènes ont été optimisées pour une spécificité et une sensibilité maximales. Les concentrations et les valeurs seuils de chacun des allergènes sont indiquées dans les spécifications correspondantes (consulter le sommaire à la page 3).

Dans le cas du test Flow CAST®, BÜHLMANN recommande d'utiliser un critère de diagnostic supplémentaire, l'indice de stimulation (IS). L'IS est défini comme le quotient entre l'activation spécifique des basophiles et leur activation de base.

## Remarques :

- Pour appliquer les seuils spécifiques à un allergène, il convient de respecter les critères de contrôle qualité publiés dans les instructions des tests CAST®.
- Les valeurs seuils ne sont fournies qu'à titre indicatif. Chaque laboratoire doit définir ses propres valeurs de seuil clinique, soit directement, soit en s'appuyant sur des études cliniques.

## Recommandations sur l'utilisation des tests CAST® dans le diagnostic d'allergies médicamenteuses

Le diagnostic des allergies médicamenteuses est un problème complexe, dont les symptômes sont hétérogènes et les paramètres physiopathologiques variés. Se conformer aux recommandations suivantes lors de l'uti-



lisation des tests CAST® dans le diagnostic d'allergies médicamenteuses. Ces recommandations doivent être considérées comme des lignes directrices.

#### Tableaux cliniques justifiant l'application de tests CAST®

Les réactions « allergiques » *in vivo* directes après exposition à des médicaments ou des produits chimiques correspondent à une stimulation IgE ou non-IgE médiée (réactions pseudo-allergiques) des cellules effectrices comme les basophiles, les mastocytes et les éosinophiles. Les tests CAST®, qui stimulent *in vitro* les leucocytes de l'individu, peuvent servir de modèle pour les réactions susmentionnées. Cependant, les allergènes utilisés dans les tests CAST® sont purs, et le système tampon, bien que parfaitement défini, est artificiel. La méthode ne peut donc servir que comme modèle simplifié des conditions réelles *in vivo*.

Les tests CAST® sont optimisés pour la détection des réactions allergiques de type immédiat (Type I) et des réactions pseudo-allergiques. Les tests CAST® sont inapplicables au diagnostic des allergies de type retardé (par exemple les réactions de type IV). Ainsi, ces tests ne doivent servir que dans le cas de réactions allergiques de type immédiat, en particulier si l'un des symptômes suivants est constaté :

- Réaction anaphylactique ou anaphylactoïde
- Rhino-conjonctivite
- Asthme
- Urticaire/angio-œdème
- Réactions gastro-intestinales

#### Tableaux cliniques ne justifiant pas l'application de tests CAST®

Ne pas utiliser les tests CAST® dans le diagnostic des réactions faisant intervenir les cellules T. Du fait du mécanisme pathologique impliqué, l'utilisation systématique des tests CAST® n'est pas recommandée chez les groupes de patients atteints des troubles suivants :

- Exanthèmes maculopapuleux et pustuleux
- Vascularite
- Dermatite de contact allergique
- Exanthèmes bulleux comme le syndrome de Stevens-Johnsons et la maladie de Lyell

#### Utilisation des allergènes non commercialisés par BÜHLMANN

Certains allergènes non commercialisés par BÜHLMANN peuvent être utilisés dans les tests CAST®. Les restrictions suivantes s'appliquent :

- Aucun allergène pris dans une matrice solide ou liquide
- Aucune préparation d'allergène contenant des sulfidoleucotriènes
- Aucune préparation d'allergène contenant des composants cytotoxiques comme des stabilisants ou des conservateurs, par exemple le phénol, le glycérol, l'azoture de sodium ou le merthiolate (thimérosal).

Les instructions de fabrication d'extraits d'allergènes non commercialisés par BÜHLMANN sont disponibles sur demande. Contactez votre distributeur, ou directement BÜHLMANN Laboratories AG.

## Uso previsto

Gli Allergeni CAST® della BÜHLMANN sono ottimizzati per l'attivazione dei basofili *in vitro* mediante i seguenti dosaggi BÜHLMANN CAST®: CAST® ELISA (EK-CAST), Flow CAST® (FK-CCR) e Flow CAST® highsens (FK-HSBAT).

Gli Allergeni CAST® non sono inclusi nei dosaggi BÜHLMANN CAST® e vengono forniti su richiesta. Fare riferimento all'elenco degli allergeni.

## Istruzioni per l'uso

Le seguenti istruzioni sono valide per i seguenti gruppi di allergeni da farmaci e loro miscele (consultare l'indice alla pagina 3).

- Adjuvanti (Adjuvants)
- Analgesici (Analgesics)
- Antibiotici (Antibiotics)
- Antisettici (Antiseptics)
- Mezzi di contrasto (Contrast Media)
- Anestetici locali (Local Anesthetics)
- Miorilassanti (Myorelaxants)
- Inibitori della pompa protonica (IPP)

Gli allergeni da farmaci CAST® vengono forniti liofilizzati. Prima di essere utilizzati nei dosaggi CAST®, devono essere ricostituiti con il tampone di stimolazione specifico del test: CAST® ELISA: B-CAST-STB, Flow CAST®: B-CCR-STB; Flow CAST® highsens: B-CCR-CSB.

- Aggiungere 250 µl di tampone di stimolazione al flacone e vortexare fino a completa dissoluzione del materiale liofilizzato.
- Per alcuni allergeni si consiglia un'ulteriore diluizione con tampone di stimolazione (consultare il paragrafo "Additional dilutions" nelle specifiche degli allergeni).
- Ad esempio: per ottenere una diluizione 1:5 («Additional dilution»), aggiungere 160 µl di tampone di stimolazione a 40 µl di soluzione di allergene.
- Per la stimolazione di cellule, utilizzare queste diluizioni secondo le istruzioni per l'uso per il rispettivo CAST®.

Nota: alcuni individui hanno una reazione positiva ad alte oppure a basse concentrazioni di allergene, mentre altri hanno una reazione positiva in un ampio intervallo di concentrazioni.

## Conservazione e stabilità

Gli allergeni CAST® non aperti devono essere conservati alla temperatura indicata sull'etichetta fino alla data di

scadenza.

**IMPORTANTE:** non conservare e riutilizzare allergeni ricostituiti o diluiti!

## Tempo ottimale per i test di stimolazione

Per ottenere risultati ottimali, eseguire i dosaggi CAST® tra 3 e 12 settimane dopo una reazione allergica al presunto allergene [Bibl. 8], sebbene la specifica reazione basofila spesso persista per un periodo di tempo più lungo.

È necessario prelevare campioni di sangue per i test CAST® prima di eseguire un test cutaneo o un test di provocazione *in vivo* con il presunto allergene, dal momento che l'esposizione *in vivo* ad un allergene può causare un'attivazione dei leucociti.

## Limitazioni

Il risultato negativo di un test CAST® per un allergene specifico non esclude la possibilità di sintomi clinici (anche seri). I pazienti con anamnesi di reazioni "allergiche" ad allergeni proteici o a farmaci e CAST® negativi dovrebbero quindi essere studiati con ulteriori metodi, come test di provocazione *in vivo* o test cutanei prima della somministrazione del farmaco o dell'allergene.

## Concentrazioni e cut-off

I valori di concentrazioni e cut-off di questi gruppi di allergeni sono stati ottimizzati per quanto riguarda la massima specificità e sensibilità. Le concentrazioni e i valori dei cut-off dei singoli allergeni sono riportati nelle specifiche degli allergeni (consultare l'indice alla pagina 3).

Per Flow CAST®, BÜHLMANN propone l'uso dell'indice di stimolazione (SI) come ulteriore criterio discriminante. Lo SI è definito come il quoziente tra la attivazione basophila specifica e la attivazione aspecifica.

## Osservazioni:

- Per poter applicare valori di cut-off specifici dell'allergene in questione, è necessario che siano soddisfatti i criteri di QC pubblicati nelle istruzioni per i CAST®.
- I valori di cut-off devono essere considerati come indicativi. Il cut-off clinico deve essere stabilito da ogni singolo laboratorio o attraverso studi clinici.

## Raccomandazioni per l'uso dei dosaggi CAST® nella diagnosi di allergie da farmaci

La diagnosi di allergie da farmaci è un settore complesso, caratterizzato da varie sintomatologie e patogenesi. Occorre quindi tenere conto delle seguenti raccomandazioni quando si utilizzano i dosaggi CAST® per diagnosticare allergie ai farmaci. Tali raccomandazioni devono

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essere considerate solo come linee guida generali.

#### Quadri clinici che giustificano l'uso di dosaggi CAST®

*In vivo*, le reazioni allergiche di tipo diretto in seguito a esposizione a farmaci o sostanze chimiche possono causare la stimolazione delle cellule effettrici (ad esempio basofili, mastociti ed eosinofili) sia per via IgE mediata, che per via alternativa (reazioni pseudoallergiche). I dosaggi CAST®, stimolando i leucociti dei pazienti, rappresentano un modello *in vitro* per le suddette reazioni. Dal momento che per i dosaggi CAST® si utilizzano allergeni puri e un sistema di tamponi definito ma artificiale, il metodo può servire solo da modello semplificato delle reali condizioni *in vivo*.

I dosaggi CAST® sono stati ottimizzati per la determinazione di reazioni allergiche di tipo immediato (tipo I) e nelle pseudoallergie. I dosaggi CAST® non possono essere utilizzati per la diagnosi di allergie con reazioni ritardate (ad esempio: reazioni tipo IV). In conclusione, questi dosaggi devono essere utilizzati solo per reazioni allergiche di tipo immediato, specialmente se viene rilevato uno dei seguenti sintomi:

- Reazioni anafilattiche o anafilattoidi
- Rinocongiuntivite
- Asma bronchiale
- Orticaria/Angioedema
- Reazioni gastrointestinali

#### Quadri clinici che non giustificano l'uso di dosaggi CAST®

I dosaggi CAST® non dovrebbero essere utilizzati per la diagnosi di reazioni mediate da linfociti T. Sulla base dei meccanismi patogenetici noti, raccomandiamo di non utilizzare di routine i dosaggi CAST® nel seguente gruppo di patologie:

- Esantema maculopapulare ed esantema pustoloso
- Vasculiti
- Dermatite allergica da contatto
- Esantema bolloso, tipo sindrome di Stevens-Johnson

e malattia di Lyell

#### Utilizzazione di allergeni non forniti dalla BÜHLMANN

Nei dosaggi CAST® è possibile utilizzare allergeni da altra fonte (non forniti da BÜHLMANN). Utilizzando allergeni da altre fonti, bisogna tener conto delle seguenti limitazioni:

- No allergeni legati a matrice (solida o liquida)
- No preparazioni contenenti sulfidoleucotrieni
- No preparazioni di allergeni contenenti componenti citotossici (stabilizzanti, conservanti) come fenolo, glicerolo, sodio azide o mertiolato (thimerosal)

È disponibile a richiesta una procedura di preparazione di estratti di allergeni. Rivolgersi al distributore locale o contattare direttamente la BÜHLMANN Laboratories AG.

## Uso previsto

Los alérgenos BÜHLMANN CAST® están optimizados para la activación de basófilos *in vitro* utilizando los tests BÜHLMANN CAST®: CAST® ELISA (EK-CAST), Flow CAST® (FK-CCR) y Flow CAST® highsens (FK-HSBAT).

Los alérgenos CAST® no vienen incluidos en los ensayos BÜHLMANN CAST®. Se facilitan previa solicitud. Véase la lista de alérgenos.

## Instrucciones de uso

Las instrucciones siguientes se refieren a los siguientes grupos de alérgenos medicamentosos y mezclas de ellos (véase el índice en la página 3):

- Adjuvantes (Adjuvants)
- Analgésicos (Analgesics)
- Antibióticos (Antibiotics)
- Antisépticos (Antiseptics)
- Medios de contraste (Contrast Media)
- Anestésicos locales (Local Anesthetics)
- Miorelajantes (Myorelaxants)
- Inhibidores de la bomba de protones

Los alérgenos medicamentosos CAST® se entregan liofilizados. Antes de usarlos en tests CAST®, deben ser reconstituidos con tampón de estimulación específico de la prueba: CAST® ELISA: B-CAST-STB, Flow CAST®: B-CCR-STB y Flow CAST® highsens: B-CCR-CSB.

- Añada 250 µl de tampón de estimulación al vial y sométalo a vórtice hasta que el material liofilizado se haya disuelto completamente.
- Para algunos alérgenos, recomendamos una dilución adicional con tampón de estimulación (véase el párrafo "Additional dilutions" en las especificaciones de alérgenos).
- P.ej. Se lleva a cabo una dilución "1:5" («Additional dilution») añadiendo 160 µl de tampón de estimulación a 40 µl de solución de alérgeno.
- Para la estimulación celular, utilice esas diluciones conforme a lo indicado en las respectivas Instrucciones de uso de CAST®.

Observación: Algunas personas reaccionan positivamente bien a altas o a bajas concentraciones de alérgeno, mientras que otras reaccionan positivamente en un amplio rango de concentración.

## Almacenamiento y estabilidad

Los alérgenos CAST® sin abrir deben almacenarse a la temperatura especificada en la etiqueta hasta su fecha

de caducidad.

**Importante:** ¡Los alérgenos reconstituidos o diluidos no deben ser almacenados y reutilizados!

## Período de tiempo óptimo para los tests de estimulación

Para obtener unos resultados óptimos, los tests CAST® se deben llevar a cabo entre 3 y 12 semanas después de una reacción alérgica al supuesto alérgeno [Ref.8], pese a que la reacción específica de los basófilos suela persistir a menudo durante un período de tiempo más largo.

Las muestras de sangre para tests CAST® se deben extraer antes de llevar a cabo tests cutáneos o de provocación *in vivo* con el supuesto alérgeno, ya que la exposición *in vivo* a un alérgeno puede provocar una activación de los leucocitos.

## Limitaciones

Un resultado negativo en una prueba CAST® para un determinado alérgeno no excluye posibles síntomas clínicos (incluso de gravedad). Para las personas que hayan presentado reacciones "alérgicas" frente a alérgenos proteicos o medicamentosos con anterioridad y cuyo resultado en un test CAST® sea negativo, debería por tanto verificarse ese resultado con métodos adicionales como la provocación *in vivo* o prueba cutánea antes de que les sea administrado un medicamento o alérgeno.

## Concentraciones y umbrales

Las concentraciones y los umbrales (cut-offs) de estos grupos de alérgenos se optimizaron con respecto a la máxima especificidad y sensibilidad. Las concentraciones y los umbrales correspondientes a los distintos alérgenos se indican en las especificaciones de los mismos (véase el índice en la página 3).

Para Flow CAST®, BÜHLMANN recomienda la aplicación del índice de estimulación (IE o SI por las siglas en inglés) como criterio diagnóstico adicional. El IE o SI se define como el cociente entre la activación específica de los basófilos y la activación básica.

## Observaciones:

- Para aplicar umbrales específicos de alérgenos, deben cumplirse los criterios de control de calidad recogidos en las instrucciones de CAST®.
- Los umbrales deben servir únicamente como recomendaciones. Deben establecerse umbrales clínicamente definidos en cada laboratorio o

mediante estudios clínicos.

### Recomendaciones sobre el uso de tests CAST® en el diagnóstico de alergias medicamentosas

El diagnóstico de alergias medicamentosas es un tema complejo que incluye síntomas heterogéneos y una fisiopatología variada. Así pues, deben tomarse en consideración las recomendaciones siguientes cuando se utilicen tests CAST® para diagnosticar alergias medicamentosas. Estas recomendaciones deben considerarse únicamente como orientaciones generales.

### Cuadros clínicos que justifican la aplicación de tests CAST®

Las reacciones "alérgicas" directas *in vivo* tras exposición a medicamentos o agentes químicos consisten en la estimulación bien mediada por IgE o no mediada por IgE (reacciones pseudoalérgicas) de células efectoras (p.ej. basófilos, mastocitos y eosinófilos). Los tests CAST® pueden servir como modelo de las reacciones mencionadas mediante la estimulación *in vitro* de los leucocitos de la persona a diagnosticar. Puesto que en los tests CAST® se utilizan alérgenos puros y un sistema tampón definido pero artificial, el método sólo puede servir como modelo simplificado de las condiciones *in vivo* reales.

Los tests CAST® están optimizados para la detección de reacciones alérgicas de tipo inmediato (tipo I) y reacciones pseudoalérgicas. Los tests CAST® no son aplicables al diagnóstico de alergias de tipo retardado (p.ej. reacciones de tipo IV). Así pues, estos tests deben utilizarse únicamente para reacciones alérgicas de tipo inmediato, especialmente si se detecta alguno de los síntomas siguientes:

- Reacciones anafilácticas o anafilactoides
- Rinoconjuntivitis
- Asma bronquial
- Urticaria / Angioedema
- Reacciones gastrointestinales

### Cuadros clínicos que no justifican la aplicación de tests CAST®

Los tests CAST® no se deben utilizar para el diagnóstico de reacciones mediadas por células T. En base a su mecanismo patogénico, no se recomienda el uso de tests CAST® de manera rutinaria para los siguientes grupos de pacientes:

- Exantema maculopapular y pustular
- Vasculitis
- Dermatitis por contacto alérgica
- Exantemas vesiculares como el síndrome de Stevens-Johnson y la enfermedad de Lyell

### Utilización de alérgenos no obtenibles de BÜHLMANN

En los tests CAST® es posible utilizar alérgenos no distribuidos por BÜHLMANN. Deben observarse las restricciones siguientes:

- Ningún alérgeno unido a matrices (sólidas o líquidas)
- Ninguna preparación de alérgenos que contenga sulfuroleucotrienos
- Ninguna preparación de alérgenos que contenga componentes (estabilizantes, conservantes) citotóxicos tales como p.ej. fenol, glicerol, azida sódica o mertiolato (timerosal)

Previo solicitud, hay disponibles instrucciones para la preparación de extractos de alérgenos no obtenibles de BÜHLMANN. Pregunte a su distribuidor local o póngase en contacto con BÜHLMANN Laboratories AG directamente.

1. Eberlein B, León Suárez I, Darsow U, Ruëff F, Behrendt H, Ring J: A new basophil activation test using CD63 and CCR3 in allergy to antibiotics. *Clin & Exp Allergy* 2010, 40: 411-8.
2. Garcia-Ortega P, Marin A, Quilez E, Rodriguez-Leor O: New tools for allergy diagnosis and clinical advice after immediate reactions to ICM. *Br J Radiol* 2010, 83: 632-33.
3. De Weck AL, Sanz ML, Gamboa PM, Jermann JM, Kowalski M, Medrala W, Sainte-Laudy J, Schneider MS, Weber JM, Wolanczyk-Medrala A: Nonsteroidal anti-inflammatory drug hypersensitivity syndrome. A multicenter study II. Basophil activation by nonsteroidal anti-inflammatory drugs and its impact on pathogenesis. *J Investig Allergol Clin Immunol* 2010, 20: 39-57.
4. Hausmann OV, Gentinetta T, Bridts CH, Ebo DG: The basophil activation test in immediate-type drug allergy. *Immunol Allergy Clin N Am* 2009, 29: 555-66.
5. Dewachter P, Nicaise-Roland P, Kalaboka S, Lefèvre J, Chollet-Martin S: Anaphylaxis to amidotrizoate proved by skin testing and flow cytometry-based basophil activation test. *Allergy* 2009, 64: 501-2.
6. De Weck AL, Sanz ML, Gamboa PM, Aberer W, Sturm G, Bilo MB, Montroni M, Blanca M, Torres MJ, Mayorga L, Campi P, Manfredi M, Drouet M, Staint-Laudy J, Romano A, Merk H, Weber JM, Jermann TM, members of ENDA (European Network for Drug Allergy): Diagnosis of immediate-type  $\beta$ -Lactam allergy in vitro by flow-cytometric basophil activation test and sulfidoleukotriene production: a multicenter study. *J Investig Allergol Clin Immunol* 2009, 19: 91-109.
7. Steiner U, Gentinetta T, Hausmann O: IgE-mediated anaphylaxis to intraarticularn Glucocorticoid preparations. *AJR Am J Roetgenol* 2009, 193:156-7.
8. Gómez E, Blanca-Lopez N, Torresz MJ, Requenaz G, Rondonz C, Canto G, Blanca M, Mayorga C: Immunoglobulin E-mediated immediate allergic reactions to dipyrone: value of basophil activation test in the identification of patients. *Clinical & Experimental Allergy* 2009, 39: 1217-1224.
9. Kvedariene V, Kamey S, Ryckwaert Y, Rongier M, Bousquet J, Demoly P, Arnoux B: Diagnosis of neuromuscular blocking agent hypersensitivity reactions using cytofluorimetric analysis of basophils. *Allergy* 2006; 61: 311-5.
10. Scherer K, Studer W, Figueiredo V, Bircher A: Anaphylaxis to isosulfan blue and cross-reactivity to patent blue V: Case report and review of the nomenclature of vital blue dyes. *Ann Allergy Asthma Immunol* 2006, 96: 497-0.
11. Erdmann SM, Ventocilla S, Moll-Slodowy S, Sauer I, Merk HF: Basophilenaktivierungstests in der Diagnostik von Arzneimittelreaktionen. *Hautarzt* 2005, 56: 38-43.
12. Sanz ML, Gamboa P, de Weck AL: A new combined test with flowcytometric basophil activation and determination of sulfidoleukotrienes is useful for in vitro diagnosis of Hypersensitivity to Aspirin and other nonsteroidal anti-inflammatory drugs. *Int Arch Allergy Immunol* 2005, 136: 58-72.
13. Sudherr PS, Haal JE, Read GF, Rowbottom AW, Williams PE: Flow cytometric investigation of peri-anaesthetic anaphylaxis using CD63 and CD203c. *Anaesthesia* 2005, 60: 251-56.
14. Gamboa P, Sanz ML, Caballero MR Urrutia I, Antepara I, Esparza R, de Weck AL: The flowcytometric determination of basophil activation induced aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) is useful for in vitro diagnosis of the NSAID hypersensitivity syndrome. *Clin Exp Allergy* 2004, 34: 1448-57.
15. Torres MJ, Padial A, Mayorga C, Fernandez T, Sanchez-Sabate E, Cornejo-Garcia JA, Antunez C, Blanca M: The diagnostic interpretation of basophil activation test in immediate allergic reactions to betalactams. *Clin Exp Allergy* 2004, 34: 1768-75.
16. Gamboa PM, Sanz ML, Caballero MR, Antépara I, Urrutia I, Jáuregui I, González G, Diéguez I, De Weck AL: Use of CD63 expression as a marker of in vitro basophil activation and leukotrienes determination in metamizole allergic patients. *Allergy* 2003, 58: 312-7.
17. Sanz ML, Gamboa PM, De Weck AL: Clinical evaluation of in vitro tests in Diagnosis of immediate allergic reactions to  $\beta$ -lactam antibiotics. *ACI International* 2002, 14: 185-93.
18. Monneret G, Benoit Y, Debard AL, Gutowski MC, Topenot I, Bienvenu J: Monitoring of basophil activation using CD63 and CCR3 in allergy to muscle relaxant drugs. *Clin Immunol* 2002, 102: 192-9.
19. Sanz ML, Gamboa PM, Antepara I, Uasuf C, Vila L, Garcia-Aviles C, Chazot M, De Weck AL: Flow cytometric basophil activation test by detection of CD63 expression in patients with immediate-type reactions to betalactam antibiotics. *Clin Exp Allergy* 2002, 32: 277-86.
20. Monneret G, Benoit Y, Gutowski MC, Bienvenu J: Detection of basophil activation by flow cytometry in patients with allergy to muscle-relaxant drugs. *Anesthesiology* 2000, 92: 275-7.
21. Abuaf N, Rajoely B, Ghazouani E, Levy DA, Pecquet C, Chabane H, Leynadier F: Validation of a flow cytometric assay detecting in vitro basophil activation for the diagnosis of muscle relaxant allergy. *J Allergy Clin Immunol* 1999, 104: 411-8.

Order code	Name	
<b>BAG2-CE466</b>	<b>Carboxymethylcellulose</b>	sodium salt

Trade Names Cellulose glycolate; Cethylose; CMC; Carmethose; Cel-0-Brandt; Glykocellon; Carbose D; Xylo-Mucine; Tylose MGA; Cellolax; Polycell

Content per vial	5 µg	Conc after reconst.	20 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	4 µg/ml	4.5 µg/ml	4.5 µg/ml
Cut-off	≥150 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name	
<b>BAG2-CPEG</b>	<b>PEG-4000</b>	H(OCH <sub>2</sub> CH <sub>2</sub> ) <sub>n</sub> OH MW 3500 - 4500

Trade Names Macrogol 4000; Polyethylenglycol MW 4000

Content per vial	1 mg	Conc after reconst.	4 mg/ml
Additional dilutions	1:10		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	800 µg/ml	910 µg/ml	910 µg/ml
Cut-off	≥ 50 pg/ml	≥15% CD63; SI*≥2	≥15% CD63+CD203c

<b>Order code</b>	<b>Name</b>	$C_{15}H_{22}N_2O_6$
<b>BAG2-C51</b>	<b>Lys-Aspirin</b>	MW 326.4

Trade Names	Acetophen; Acetosal; Acylpyrin; Alcacyl; Asatard; Aspidol; Aspro; Caprin; Colfarit; Contrheuma; Delgesic; Duramax; Ecotrin; Endydol; Entrophen; Rhodine; Salacetin; Salcetogen; Saletin; Solpyron; Venopirin		
Content per vial	625 µg	Conc after reconst.	2.50 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	500 µg/ml	570 µg/ml	570 µg/ml
Cut-off	≥90 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c

<b>Order code</b>	<b>Name</b>	$C_{14}H_{10}Cl_2NNaO_2$
<b>BAG2-C52</b>	<b>Diclofenac</b>	MW 318.1

Trade Names	Allvoran; Benfofen; Cataflam; Diclo-Phlogont; Diclo-Puren; Diclorem; Dolobasan; Duravolten; Ecofenac; Effekton; Novapixina; Primofenac; Prophenatin; Rhumalgen; Valetan; Voldal; Voltaren; Voltarol; Xenid		
Content per vial	6.25 µg	Conc after reconst.	25 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	5 µg/ml	5.7 µg/ml	5.7 µg/ml
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{13}H_{18}O_2$
<b>BAG2-C53</b>	<b>Ibuprofen</b>	MW 206.3

Trade Names	Alges; Algifo; Brufen; Dismenol; Dentigoa; Dolgirid; Dolgit; Dolocyl; Epobron; Femadon; Grefen; Ifufen; Ibumetin; Ibutad; Ibutop; Nurofen; Optifen; Saridon; Sonotryl; Spedifen; Tabalon; Urem		
Content per vial	25 µg	Conc after reconst.	100 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	20 µg/ml	22.7 µg/ml	22.7 µg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2



<b>Order code</b>	<b>Name</b>		$C_{19}H_{16}ClNO_4$
<b>BAG2-C54</b>	<b>Indomethacin</b>		MW 357.8

Trade Names	Elmetacin; Indocin; Indometacin; Indophtal; Indo-TOP; Indocolir; Indomet; Inflam; Protaxon; Reusin; Rheublamin; Sigadoc; Sjoebo		
Content per vial	2.5 µg	Conc after reconst.	10 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	2.0 µg/ml	2.27 µg/ml	n.a.
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	n.a.

<b>Order code</b>	<b>Name</b>		$C_{19}H_{16}ClNO_4$
<b>BAG2-C54F</b>	<b>Indomethacin</b>		MW 357.8

Trade Names	Elmetacin; Indocin; Indometacin; Indophtal; Indo-TOP; Indocolir; Indomet; Inflam; Protaxon; Reusin; Rheublamin; Sigadoc; Sjoebo		
Content per vial	0.5 µg	Conc after reconst.	2 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	n.a.	n.a.	0.45 µg/ml
Cut-off	n.a.	n.a.	≥10% CD63+CD203c

<b>Order code</b>	<b>Name</b>		$C_8H_9NO_2$
<b>BAG2-C55</b>	<b>Acetaminophen</b>		MW 151.2

Trade Names	Acetalgin; Azur; Ben-u-ron; Boxacin; Boxonal; Buscopan; Captin; Cervopyrin; Coffalon; Dafalgan; Dolereduct; Dolevar; Enelfa; Epsimol; Exedrin; Febrifant; Fibrex; Gelonida; Panadol; Perfalgan; Treupel; Zolben		
Content per vial	2.5 µg	Conc after reconst.	10 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	2.0 µg/ml	2.27 µg/ml	2.27 µg/ml
Cut-off	≥60 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{15}H_{15}NO_2$
<b>BAG2-C56</b>	<b>Mefenamic Acid</b>	MW 241.3

Trade Names Mefenacid; Mefenamin; Mephadolol; Ponstan; Spiralgin

Content per vial	6.25 µg	Conc after reconst.	25 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	5 µg/ml	5.7 µg/ml	5.7 µg/ml
Cut-off	≥60 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{19}H_{20}N_2O_2$
<b>BAG2-C57</b>	<b>Phenylbutazone</b>	MW 308.4 sodium salt

Trade Names Ambene; Artrizin; Azolid; Bizolin; Butacote; Butadion; Butapirazol; Butadiona; Butatron; Butoz; Butazolidin; Buzon; Ecobutazone; Equipalazone; Exrheudon N; Fenibutol; Intrabutazone; Intrazone; Mepha-Butazon; Phenyzene

Content per vial	25 µg	Conc after reconst.	100 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	20 µg/ml	22.7 µg/ml	22.7 µg/ml
Cut-off	≥80 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{14}H_{18}N_2O$
<b>BAG2-C58</b>	<b>Propyphenazone</b>	MW 230.3

Trade Names Amtalidin; Budiro; Causyth; Cibalgina; Cistalgin; Eufibron; Isoprochin; Optalidon Saridon Spasmo

Content per vial	12.5 µg	Conc after reconst.	50 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	10 µg/ml	11.5 µg/ml	11.5 µg/ml
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name	C <sub>13</sub> H <sub>16</sub> N <sub>3</sub> NaO <sub>4</sub> S · H <sub>2</sub> O	
<b>BAG2-C59</b>	<b>Dipyrone / Metamizole</b>	MW 351.4	
		sodium salt	
Trade Names	Analgina; Analgin; Berlosin; Inalgon; Metalgin; Minalgin; Nopain; Novalgin; Novalgina; Novaminsulfon; Nolotil; Sulfonovin; Vetalgin		
Content per vial	12.5 µg	Conc after reconst.	50 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	10 µg/ml	11.5 µg/ml	11.5 µg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name	C <sub>14</sub> H <sub>13</sub> NaO <sub>3</sub>	
<b>BAG2-CNAP</b>	<b>Naproxen</b>	MW 252.2	
		sodium salt	
Trade Names	Alacetan; Aleve; Anaprox; Apranax; Dolormin; Dysmenalgit; Mobilat; Naprobene; Proxen		
Content per vial	100 µg	Conc after reconst.	400 µg/ml
Additional dilutions	1:10		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	80 µg/ml	91 µg/ml	91 µg/ml
Cut-off	≥200 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name	C <sub>7</sub> H <sub>5</sub> NaO <sub>3</sub>	
<b>BAG2-C114</b>	<b>Salicylic acid</b>	MW 160.1	
		sodium salt	
Trade Names	Metabolite of Aspirin. Alysine; Idocyl novum; Enterosalicyl; Magsalyl; Parbocyl-Rev; Sodium 2-hydroxybenzoate; 2-Hydroxybenzoic acid		
Content per vial	250 µg	Conc after reconst.	1 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	200 µg/ml	227 µg/ml	227 µg/ml
Cut-off	≥ 120 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c

Order code	Name		
<b>BAG2-C1</b>	<b>Penicillin G</b>		$C_{16}H_{17}N_2NaO_4S$ MW 356.4 sodium salt

Trade Names	Benzylpenicillin Sodium; Sodium Penicillin II; Sodium Benzylpenicillin; Pencillinic Acid Sodium Salt; Penicillin: American Penicillin; Nalpen G; Novocillin; Penilaryn; Pen-A-Brasive; Veticillin		
Content per vial	1 mg	Conc after reconst.	4 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	800 µg/ml	910 µg/ml	910 µg/ml
Cut-off	≥ 50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name		
<b>BAG2-C11</b>	<b>Benzylpenicilloyl-Polylysine (PPL)</b>		

Trade Names	Penicilloypolylysine; PPL; Cilligen; Pre-Pen; Testarpen. The BPO (Benzylpenicilloyl)-group is the major determinant of Typ I allergies against Benzylpenicillin and related antibiotics		
Content per vial	12.5 µg	Conc after reconst.	50 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	10 µg/ml	11.5 µg/ml	11.5 µg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name		
<b>BAG2-C12</b>	<b>Minor Determinant Mix (MDM)</b>		

Trade Names	MDM; Mixture of Sodium-Benzylpenicillin and di-Sodium-Benzylpenicilloat		
Content per vial	250 µg	Conc after reconst.	1 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	200 µg/ml	225 µg/ml	225 µg/ml
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{16}H_{18}N_2O_5SK$
<b>BAG2-C2</b>	<b>Penicillin V</b>	MW 388.5 potassium salt

Trade Names	Acipen-V; Apopen; Distaquaine V; Eskacillin V; Fenacillin; Fenospin; Meropenin; Orocillin; Oratren; Oспен; Pen-Oral; Pen-Vee; Phenopenicillin; P-Mega-Tablinen; Stabicillin; V-Gil; V-Gillin; Vebecillin		
Content per vial	1 mg	Conc after reconst.	4 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	800 µg/ml	910 µg/ml	910 µg/ml
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{16}H_{19}N_3O_8SZn$
<b>BAG2-C3</b>	<b>Cephalosporin C</b>	MW 478.8 zinc salt

Trade Names	None. Cephalosporin C is the basic structure of many antibiotics such as Cefazolin and Cefamandole.		
Content per vial	25 µg	Conc after reconst.	100 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	20 µg/ml	22.5 µg/ml	22.5 µg/ml
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{19}H_{17}N_6O_5S_2$
<b>BAG2-C31</b>	<b>Cefamandole</b>	MW 462.5 formate sodium salt

Trade Names	Bergacef; Cedol; Cefam; Cefiran; Cemando; Cemandil; Fado; Kefadol; Kefandol; Lampomandol; Mandokef; Mandol; Mandolsan; Neocefal; Pavecef		
Content per vial	625 µg	Conc after reconst.	2.5 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	500 µg/ml	570 µg/ml	570 µg/ml
Cut-off	≥ 80 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name			$C_{14}H_{14}N_6O_4S_3$
<b>BAG2-C32</b>	<b>Cefazoline</b>			MW 454.5
				sodium salt
Trade Names	Acef; Ancef; Atirin; Biazolina; Bor-Cefazol; Cefacidal; Cefamedin; Cefamezin; Cefazil; Cefazina; Elzogram; Firmacef; Gramaxin; Kefzol; Lampocef; Liviclina; Totacef; Zolicef			
Content per vial	625 µg	Conc after reconst.	2.5 mg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	500 µg/ml	570 µg/ml	570 µg/ml	
Cut-off	≥ 80 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

Order code	Name			$C_{16}H_{16}N_4O_8S$
<b>BAG2-C33</b>	<b>Cefuroxime</b>			MW 424.4
				sodium salt
Trade Names	Anaptivan; Biociclin; Biofurex; Bioxima; Cefamar; Cefoprom; Ceftin; Cefumax; Cefurax; Cefurex; Cefurin; Cepacine; Curocef; Curoxim; Duxima; Elobact; Kefurox; Novocef; Spectazole; Zinacef; Zinat; Zinnat			
Content per vial	625 µg	Conc after reconst.	2.5 mg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	500 µg/ml	570 µg/ml	570 µg/ml	
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

Order code	Name			$C_{15}H_{14}ClN_3O_4S$
<b>BAG2-C34</b>	<b>Cefaclor</b>			MW 367.8
Trade Names	Alenfral; Alfacet; Alfatil; Ceclor; Distaclor; Kefral; Keflor; Panacef; Panoral; Raniclор			
Content per vial	0.75 mg	Conc after reconst.	3 mg/ml	
Additional dilutions	1:10			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	600 µg/ml	682 µg/ml	682 µg/ml	
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

<b>Order code</b>	<b>Name</b>	$C_{18}H_{16}N_8Na_2O_7S_3$
<b>BAG2-C35</b>	<b>Ceftriaxone</b>	MW 598.6
		sodium salt

Trade Names Amplospec; Antibacin; Cefotrix; Rocefin; Rocephin; Tercefon

Content per vial	1 mg	Conc after reconst.	4 mg/ml
Additional dilutions	1:10		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	720 µg/ml	818 µg/ml	818 µg/ml
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{18}H_{20}FN_3O_4$
<b>BAG2-C36</b>	<b>Levofloxacin</b>	MW 361.4

Trade Names Cravit, Elequine, Floxel, Iquix, Leroxacin, Lesacin, Levaquin, Levokacin, Levox, Levoxacin, Mosardal, Nofaxin, Oftaquix, Quixin, Reskuin, Tavanic, Volequin

Content per vial	200 µg	Conc after reconst.	800 µg/ml
Additional dilutions	1:10		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	160 µg/ml	182 µg/ml	182 µg/ml
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{10}H_{11}N_3O_3S$
<b>BAG2-C61</b>	<b>Sulfamethoxazole</b>	MW 253.3

Trade Names Gantanol; Sinomin. Mixture with Trimethoprim: Bactrim; Berlocid; Cotrim; Cotrimox; Cotrimstada; Cotrimoxazol; Drylin; Escoprim; Eusaprim; Kepinol; Lagatrim; Nopil; Sigaprim; TMS forte

Content per vial	25 µg	Conc after reconst.	100 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	20 µg/ml	22.5 µg/ml	22.5 µg/ml
Cut-off	≥ 50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

Order code	Name			$C_{14}H_{18}N_4O_3$ MW 290.3
<b>BAG2-C62</b>	<b>Trimethoprim</b>			
Trade Names	Infectotrimet; Motrim; Triprim. Mixture with Sulfamethoxazole: Bactrim; Berlocid; Cotrim; Cotrimox; Cotrimstada; Cotrimoxazol; Drylin; Escoprim; Eusaprim; Kepinol; Lagatrim; Nopil; Sigaprim; TMS forte			
Content per vial	25 µg	Conc after reconst.	100 µg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	20 µg/ml	22.7 µg/ml	22.7 µg/ml	
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

Order code	Name			$C_{22}H_{24}N_2O_8$ MW 444.4
<b>BAG2-C75</b>	<b>Tetracycline</b>			
Trade Names	Actisite-Dental; Fluorex Plus; Imex; Mysteclin; Sumycin; Tefilin			
Content per vial	25 µg	Conc after reconst.	100 µg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	20 µg/ml	22.7 µg/ml	22.7 µg/ml	
Cut-off	≥ 90 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

Order code	Name			$C_{17}H_{18}FN_3O_3$ MW 331.4
<b>BAG2-C81</b>	<b>Ciprofloxacin</b>			
Trade Names	Baycip; Ciflox; Giloxan; Ciprinol; Cipro; Ciprobay; Ciproxan; Ciproxin; Flociprin; Septicide; Velmonit			
Content per vial	25 µg	Conc after reconst.	100 µg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	20 µg/ml	22.5 µg/ml	22.5 µg/ml	
Cut-off	≥ 90 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	



<b>Order code</b>	<b>Name</b>			$C_{16}H_{19}N_3O_4S$
<b>BAG2-C203</b>	<b>Ampicillin</b>			MW 388.5

Trade Names	Albipen; Amblosin; Ampicin; Ampilar; Ampitab; Amplital; Austrapen; Britacil; Cetampin; Doktacillin; Omnipen; Penbristol; Penbritin; Pentrex; Pentrexyl; Princillin; Principen; Tokiocillin; Totacillin; Ukapen; Vidopen			
Content per vial	2.5 mg	Conc after reconst.	10 mg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	2 mg/ml	2.27 mg/ml	2.27 mg/ml	
Cut-off	≥ 70 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

<b>Order code</b>	<b>Name</b>			$C_{16}H_{19}N_3O_5S$
<b>BAG2-C204</b>	<b>Amoxicillin</b>			MW 365.4

Trade Names	Alfamox; Amocilline; Amoxi; Amoxidal; Ardine; Betamox; Clamoxyl; Dura X; Flemoxin; Hiconcil; Ibiamax; Moxal; Neamoxyl; Ospamox; Pasetocin; Penimox; Raylina; Sawacillin; Silamox; Trimox; Ultimox; Zamocillin			
Content per vial	625 µg	Conc after reconst.	2.5 mg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	500 µg/ml	570 µg/ml	570 µg/ml	
Cut-off	≥ 100 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

<b>Order code</b>	<b>Name</b>			$C_{38}H_{69}NO_{13}$
<b>BAG2-CCLA</b>	<b>Clarithromycin</b>			MW 748.0

Trade Names	Biaxin; Clathromycin; Cyllind; Klacid; Klaricid; Macladin; Mavid; Naxy; Veclam; Zeclar			
Content per vial	25 µg	Conc after reconst.	100 µg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	20 µg/ml	22.7 µg/ml	22.7 µg/ml	
Cut-off	≥70 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2	

# Antibiotics

**Order code**      **Name**  
**BAG2-CCLAV**      **Clavulanic acid**

$C_8H_9NO_5$   
MW 199.16  
potassium salt

Trade Names                  Combined with amoxicillin (co-amoxiclav, trade names Augmentin, Synulox, and others) or ticarcillin

Content per vial            0.625 mg                                  Conc after reconst.                  2.5 mg/ml

Additional dilutions      1:5

Assay                          **CAST® ELISA**                          **Flow CAST®**                          **Flow CAST® highsens**

Conc. in stimulation      500 µg/ml                                  570 µg/ml                                  570 µg/ml

Cut-off                          ≥40 pg/ml                                  ≥15% CD63                                  ≥15% CD63+CD203c

**Order code**      **Name**  
**BAG2-CRIF**      **Rifampicin**

$C_{43}H_{58}N_4O_{12}$   
MW 823.0

Trade Names                  Rifampicin; Rifaldazine, Rifamycin AMP; R/AMP; Abrifam; Eremfat; Rifa; Rifadine; Rifaldine Rifaldin, Rifaprodin; Rifoldin; Rimactane

Content per vial            25 µg    Conc after reconst.                  100 µg/ml

Additional dilutions      1:5

Assay                          **CAST® ELISA**                          **Flow CAST®**                          **Flow CAST® highsens**

Conc. in stimulation      20 µg/ml    22.7 µg/ml    22.7 µg/ml

Cut-off                          ≥ 100 pg/ml                                  ≥5% CD63; SI\*≥2                                  ≥5% CD63+CD203c; SI\*≥2

# Antiseptics

**Order code**      **Name**

**BAG2-CCHX**      **Chlorhexidine**

$C_{22}H_{30}Cl_2N_{10}x_2(C_6H_{12}O_7)$   
MW 897.8

Digluconate

**Trade Names**      Atoseptal; Chlorhexamed; Corsodyl; Dentohexin; Dosisseptine; Hexamedal; Hibidil; Hibiscrub; Lifo-Scrub; Periochip

<b>Content per vial</b>	1.25 µg	<b>Conc after reconst.</b>	5 µg/ml
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**Additional dilutions**    1:5

<b>Assay</b>	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
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<b>Conc. in stimulation</b>	1 µg/ml	1.14 µg/ml	1.14 µg/ml
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<b>Cut-off</b>	≥100 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c
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# Contrast Media

<b>Order code</b>	<b>Name</b>			$C_{20}H_{28}I_3N_3O_9$
<b>BAG2-CIOBI</b>	<b>Iobitridol</b>			MW 835.2

Trade Names            Xenetix

Content per vial	1.25 mg	Conc after reconst.	5 mg/ml
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Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>			$C_{35}H_{44}I_6N_6O_{15}$
<b>BAG2-CIODI</b>	<b>Iodixanol</b>			MW 1550.2

Trade Names            Visipaque

Content per vial	1.25 mg	Conc after reconst.	5 mg/ml
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Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥200 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>			$C_{19}H_{26}I_3N_3O_9$
<b>BAG2-CIOHE</b>	<b>Iohexol</b>			MW 821.1

Trade Names            Omnipaque; Accupaque

Content per vial	1.25 mg	Conc after reconst.	5 mg/ml
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Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

# Contrast Media

<b>Order code</b>	<b>Name</b>			$C_{17}H_{22}I_3N_3O_8$
<b>BAG2-CIOME</b>	<b>Iomeprol</b>			MW 777.1

Trade Names Iomeron

Content per vial 1.25 mg Conc after reconst. 5 mg/ml

Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>			$C_{17}H_{22}I_3N_3O_8$
<b>BAG2-CIOPA</b>	<b>Iopamidol</b>			MW 777.1

Trade Names Iopamiro; Isovue; Iopamiron; Niopam; Scanlux

Content per vial 1.25 mg Conc after reconst. 5 mg/ml

Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥160 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>			$C_{18}H_{24}I_3N_3O_8$
<b>BAG2-CIOPR</b>	<b>Iopromide</b>			MW 791.1

Trade Names Ultravist

Content per vial 1.25 mg Conc after reconst. 5 mg/ml

Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥200 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{24}H_{21}I_6N_5O_8$
<b>BAG2-CIOXA</b>	<b>Ioxaglate</b>	MW 1268.9

Trade Names Hexabrix; Ioxaglic acid

Content per vial	1.25 mg	Conc after reconst.	5 mg/ml
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Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{12}H_{11}I_3N_2O_5$
<b>BAG2-CIOXI</b>	<b>Ioxitalamate</b>	MW 643.9

Trade Names Telebrix; Ioxitalamic acid

Content per vial	1.25 mg	Conc after reconst.	5 mg/ml
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Additional dilutions

Assay	CAST® ELISA	Flow CAST®	Flow CAST® highsens
Conc. in stimulation	1 mg/ml	1.1 mg/ml	1.1 mg/ml
Cut-off	≥200 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

# Local Anesthetics

Order code	Name			$C_{13}H_{20}N_2O_3 \times HCl$
<b>BAG2-CART</b>	<b>Articaine</b>			MW 320.4
hydrochloride				
Trade Names	Astracaine; Rudocain; Septanest; Septocaine; Ubistesin; Ultracaine			
Content per vial	100 µg	Conc after reconst.	400 µg/ml	
Additional dilutions	1:5			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	80 µg/ml	91 µg/ml	91 µg/ml	
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c	

Order code	Name			$C_{18}H_{28}N_2O \times HCl$
<b>BAG2-CBUP</b>	<b>Bupivacaine</b>			MW 324.9
hydrochloride				
Trade Names	Carbostesin; Marcain; Marcaine; Sensorcaine; Vivacaine.			
Content per vial	100 µg	Conc after reconst.	400 µg/ml	
Additional dilutions	1:10			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	80 µg/ml	91 µg/ml	91 µg/ml	
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c	

Order code	Name			$C_{15}H_{22}N_2O \times HCl$
<b>BAG2-CMEP</b>	<b>Mepivacaine</b>			MW 282.8
hydrochloride				
Trade Names	Carbocaina; Isogaine; Meaverin; Mecain; Mepibil; Mepicaton; Mepident; Mepidont; Mepiforan; Mepihexal; Mepimynol; Mepivacaina; Mepivamol; Mepivastesin; Scandicain; Scandicaine; Tevacaine			
Content per vial	100 µg	Conc after reconst.	400 µg/ml	
Additional dilutions	1:10			
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>	
Conc. in stimulation	80 µg/ml	91 µg/ml	91 µg/ml	
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c	

<b>Order code</b>	<b>Name</b>
<b>BAG2-CLID</b>	<b>Lidocaine</b>

$C_{14}H_{20}N_2O Na_2$
MW 278.3
sodium salt

Trade Names	Cuivasil; Duncaine; Leostesin; Lidesthesin, Lidostesin; Lignavet; Odontalg; Rucaina; Sedagul; Xylocaine; Xylocard; Xylocitin; Xyloneural; Xylotox;		
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Content per vial	62.5 µg	Conc after reconst.	250 µg/ml
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Additional dilutions	1:5
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Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
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Conc. in stimulation	50 µg/ml	57 µg/ml	57 µg/ml
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Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c
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# Myorelaxants

<b>Order code</b>	<b>Name</b>	$C_{65}H_{82}N_2O_{18}S_2$
<b>BAG2-CATR</b>	<b>Atracurium</b>	MW 1243.5
		besylate salt

Trade Names Acuron; Aratan; Atratan; Atrelax; Atrican; Tracrium; Trarium; Wellcome 33-A-74

Content per vial	1.25 µg	Conc after reconst.	5 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	1 µg/ml	1.2 µg/ml	1.2 µg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{53}H_{72}N_2O_{12} \times 2 C_6H_5SO_3$
<b>BAG2-CCAT</b>	<b>Cis-Atracurium</b>	MW 929.1
		Besylate

Trade Names Nimbex

Content per vial	100 µg	Conc after reconst.	400 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	80 µg/ml	91 µg/ml	91 µg/ml
Cut-off	≥ 40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{58}H_{80}Cl_2N_2O_{14}$
<b>BAG2-CMIV</b>	<b>Mivacurium</b>	MW 1100.2

Trade Names Mivacron

Content per vial	250 µg	Conc after reconst.	1 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	200 µg/ml	227 µg/ml	227 µg/ml
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

# Myorelaxants

<b>Order code</b>	<b>Name</b>			$C_{35}H_{60}Br_2N_2O_4$
<b>BAG2-CPAN</b>	<b>Pancuronium</b>			MW 732.7

Trade Names            Mioblock; Pancron; Pancur; Pancuronium; Parium; Pavulon

Content per vial	250 µg	Conc after reconst.	1 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	200 µg/ml	227 µg/ml	227 µg/ml
Cut-off	≥ 110 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>			$C_{12}H_{18}O$
<b>BAG2-CPRO</b>	<b>Propofol</b>			MW 178.3

Trade Names            Diprivan; Disoprivan; Fresofol; Pofol; Propofol; Rapinovet; Recofol

Content per vial	250 µg	Conc after reconst.	1 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	200 µg/ml	227 µg/ml	227 µg/ml
Cut-off	≥50 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>			$C_{32}H_{53}N_2O_4$
<b>BAG2-CROC</b>	<b>Rocuronium</b>			MW 371.4

Trade Names            Esmeron; Zemuron

Content per vial	250 µg	Conc after reconst.	1 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	200 µg/ml	227 µg/ml	227 µg/ml
Cut-off	≥70 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>
<b>BAG2-CSUX</b>	<b>Suxamethonium</b>

$C_{14}H_{30}Cl_2N_2O_4$   
MW361

chloride salt

Trade Names            Lysthenon; Midarine; Pantolax; Succinolin

Content per vial	2.50 mg	Conc after reconst.	10 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	2 mg/ml	2.27 mg/ml	2.27 mg/ml
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>
<b>BAG2-CVEC</b>	<b>Vecuronium</b>

$C_{34}H_{57}BrN_2O_4$   
MW 637.7

bromid salt

Trade Names            Musculax; Norcuron

Content per vial	62.5 µg	Conc after reconst.	250 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	50 µg/ml	51 µg/ml	51 µg/ml
Cut-off	≥40 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>
<b>BAG2-CNBX</b>	<b>Neuromuscular Blockers Mix</b>

Ingredients	Content per vial µg	Con. after reconst. µg/ml
Suxamethonium	795	3180
Recuronium	43	171
Vecuronium	96	383
Pancuronium	95	381
Atracurium	12	50
Mivacurium	10	41
Cisatracurium	20	82

Content per vial	1.072 mg	Conc after reconst.	4.3 mg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	0.86 mg/ml	0.97 mg/ml	0.97 mg/ml
Cut-off	≥ 200 pg/ml	≥5% CD63; SI*≥2	≥10% CD63+CD203c

# Proton Pump Inhibitors

<b>Order code</b>	<b>Name</b>	$C_{17}H_{19}N_3O_3S$
<b>BAG2-COME</b>	<b>Omeprazole</b>	MW 345.4

Trade Names	Antra, Gastroloc, Losec, Losectil, Lozeprel, Mopral, Omepral, Omez, Prilosec, Ulcozol		
Content per vial	10 µg	Conc after reconst.	40 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	8 µg/ml	9.1 µg/ml	9.1 µg/ml
Cut-off	140 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{34}H_{36}MgN_6O_6S_2$
<b>BAG2-CESO</b>	<b>Esomeprazole</b>	MW 713.1
		magnesium hydrate

Trade Names	Nexium, Nexiam, Nexium IV, Axagon, Esopral, Lucen		
Content per vial	10 µg	Conc after reconst.	40 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	8 µg/ml	9.1 µg/ml	9.1 µg/ml
Cut-off	100 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

<b>Order code</b>	<b>Name</b>	$C_{16}H_{14}F_2N_3O_4S \times Na$
<b>BAG2-CPANT</b>	<b>Pantoprazole</b>	MW 405.4
		sodium salt

Trade Names	Astropan, Controloc, Inipomp, Pantomed, Pantecta, Pantoloc, Pantozol, Pantec, Pantoprazole, Pantor, Protium, Protonix, Protonix IV, Somac, Tectac,		
Content per vial	50 µg	Conc after reconst.	200 µg/ml
Additional dilutions	1:5		
Assay	<b>CAST® ELISA</b>	<b>Flow CAST®</b>	<b>Flow CAST® highsens</b>
Conc. in stimulation	40 µg/ml	45.5 µg/ml	45.5 µg/ml
Cut-off	110 pg/ml	≥5% CD63; SI*≥2	≥5% CD63+CD203c; SI*≥2

# Proton Pump Inhibitors

**Order code**      **Name**  
**BAG2-CLAN**      **Lansoprazole**

$C_{16}H_{14}F_2N_3O_2S$   
 MW 396.4

Trade Names      Aگوpton, Lanciprol, Lansobene, Lansoloc, Lansoprazol, Lansox, Lanton, Lanzo, Lanzopral, Lanzor, Lanzostad, Limpidex, Monolimum, Prevacid, Zoton, Zomel

Content per vial      50 µg      Conc after reconst.      200 µg/ml

Additional dilutions      1:5

Assay      **CAST® ELISA**      **Flow CAST®**      **Flow CAST® highsens**

Conc. in stimulation      40 µg/ml      45.5 µg/ml      45.5 µg/ml

Cut-off      200 pg/ml      ≥5% CD63; SI\*≥2      ≥5% CD63+CD203c; SI\*≥2

**Order code**      **Name**  
**BAG2-CRAB**      **Rabeprazole**

$C_{18}H_{20}N_3O_3S \times Na$   
 MW 381.4  
 sodium salt

Trade Names      AcipHex, Pariet, Rebezole, Rabezole

Content per vial      50 µg      Conc after reconst.      200 µg/ml

Additional dilutions      1:5

Assay      **CAST® ELISA**      **Flow CAST®**      **Flow CAST® highsens**

Conc. in stimulation      40 µg/ml      45.5 µg/ml      45.5 µg/ml

Cut-off      100 pg/ml      ≥5% CD63; SI\*≥2      ≥5% CD63+CD203c; SI\*≥2





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