

DetectX[®] TXB₂ ELISA Kit
Product Introduction and Value Proposition
February 2024





Thromboxane B₂ (TXB₂) ELISA Kit Introduction

- **Launch date:** February 2024
- **Research Area:** Inflammation
- **Description:** Competitive ELISA to measure TXB₂
- **Sample Types:** Serum, Plasma (EDTA and Heparin), Urine, and Tissue Culture Media
- **SKUs:** K092-H1, K092-H5
- For Research Use Only (RUO)

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TXB₂ Introduction

Thromboxane B₂ (TXB₂), C₂₀H₃₄O₆, is a stable metabolite produced by Thromboxane A₂ (TXA₂) involved in platelet activation and aggregation. The eicosanoid TXA₂ is the predominant product of cyclooxygenase, specifically COX-1¹. COX-1 catalyzes the first two steps of prostaglandins (PGs)² biosynthesis. PGs play the key role in generation of an inflammatory response and are primary targets for nonsteroidal anti-inflammatory drugs (NSAIDs)³. TXA₂ itself has prothrombotic properties and is a known vasoconstrictor. It is also thought to play a role in the pathogenesis of myocardial infarction, stroke, atherosclerosis, and bronchial asthma⁴. TXA₂ is extremely unstable, with a half-life of 30 seconds⁵. Therefore TXB₂, after it is hydrated from active TXA₂⁶, is the ideal candidate for a stable metabolite biomarker to use for an abundance of conditions and measuring anti-platelet drug effectiveness.

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3. Ricciotti E, FitzGerald GA. Prostaglandins and inflammation. *Arterioscler Thromb Vasc Biol*. 2011 May;31(5):986-1000.
4. Rucker D, Dhamoon AS. Physiology, Thromboxane A2. [Updated 2022 Sep 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-.
5. Li K, Zhao J, Wang M, Niu L, Wang Y, Li Y, Zheng Y. The Roles of Various Prostaglandins in Fibrosis: A Review. *Biomolecules*. 2021 May 24;11(6):789.
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TXB₂ ELISA Kit Use Cases

- **Drug Development and Testing:** Pharmaceutical companies can use the kit to evaluate the efficacy of new cardiovascular drugs, particularly those targeting thromboxane pathways to prevent clot formation.
- **Disease Mechanism Studies:** Researchers can study the role of TXB₂ in the pathogenesis of cardiovascular diseases, such as heart attacks and strokes, where thromboxane A₂ plays a key role.
- **Inflammatory Response Analysis:** Scientists can investigate the role of TXB₂ in systemic inflammation and its involvement in diseases such as asthma and allergic reactions where platelet activation is implicated.
- **Cancer Research:** The kit can be used to understand the role of TXB₂ in tumor growth and metastasis, given thromboxane's involvement in angiogenesis and cell proliferation.
- **Pre-clinical and Clinical Trials:** Both preclinical and clinical trials can use this kit to monitor the impact of investigational therapies on TXB₂ levels.
- **Personalized Medicine:** The kit could assist in developing personalized treatment plans by quantifying TXB₂ levels in response to specific antiplatelet therapies.
- **Biomarker Identification:** Researchers can use the kit to identify TXB₂ as a biomarker for thrombotic conditions and monitor patient response to anti-thrombotic drugs.
- **Toxicology Studies:** Pharmaceutical companies might use it to assess the impact of new drug candidates on the thromboxane pathway, which is crucial for maintaining hemostasis.
- **Academic Research:** For fundamental research in thrombosis, hemostasis, and related fields to explore the basic functions and regulations of TXB₂.





Arbor Assays Competitive Advantages

- High quality reagents manufactured in house
- Easy-to-follow protocols
- Consistent, rapid results
- Highly cited by current scientific literature
- Committed to customers
 - Timely technical and sales support
- Products ship next day
- Competitive price



What Our Customers Are Saying

“We can really trust
the rigor of the
science you use to
develop your kits.”
- *Scientist, SEZARC*

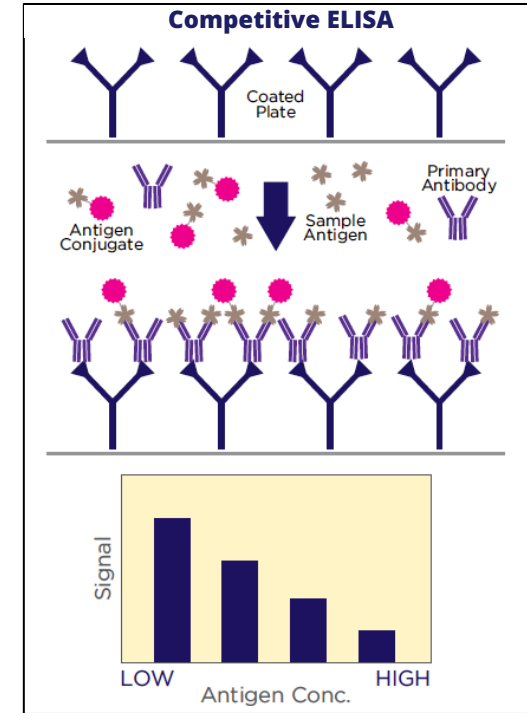
“Arbor Assays has long
been a favorite of our
laboratory – their
customer service,
reliability, and support
have made them shine
above most others.”
- *Scientist, Yale University*

“Easy kits to use and
super helpful
technical and
customer support.”
- *Scientist, University
of Illinois*



TXB₂ Competitive ELISA

- The TXB₂ Multi-Format ELISA Kit from Arbor Assays is a Competitive ELISA.
- Competitive ELISAs target small biomolecules.
- In Competitive ELISAs:
 - Secondary Antibodies coat the plate.
 - Sample Antigen and a fixed amount of Antigen-conjugate are added and compete for binding sites on the primary antibody.
 - The primary antibodies bind the secondary antibodies on the plate and any unbound materials are washed away.
- In Competitive ELISAs, when sample antigen concentration is high, the signal readout is **low**.



TXB₂ Workflow Overview

1. Add samples, standards, and buffer to wells
2. Add DetectX® Thromboxane B₂ Conjugate to wells
3. Add DetectX® Thromboxane B₂ Antibody to wells
4. Cover the plate and shake for **2 hours** at room temperature
5. Wash each well 4 times with 1X Wash Buffer
6. Add TMB to each well
 - ❖ Solution turns blue
7. Incubate **30 minutes** at room temperature
8. Add Stop Solution to each well
 - ❖ Solution turns yellow
9. Read optical density at 450nm within 10 minutes

Total incubation time: 2.5 hours



DetectX[®] TXB₂ ELISA Kit

SKU	Description	# Plates	Assay Type	Readout Type	2024 List Price	2024 Distributor Price
K092-H1	DetectX TXB ₂ ELISA Kit	1 plate	Competitive ELISA	Colorimetric	\$430.00	\$301.00
K092-H5	DetectX TXB ₂ ELISA Kit	5 plates	Competitive ELISA	Colorimetric	\$1,720.00	\$1,204.00

- **Sensitivity:** 11.2 pg/mL
- **Sample types:** Serum, EDTA Plasma, Heparin Plasma, Urine, Tissue Culture Media
- **Research Area:** Inflammation



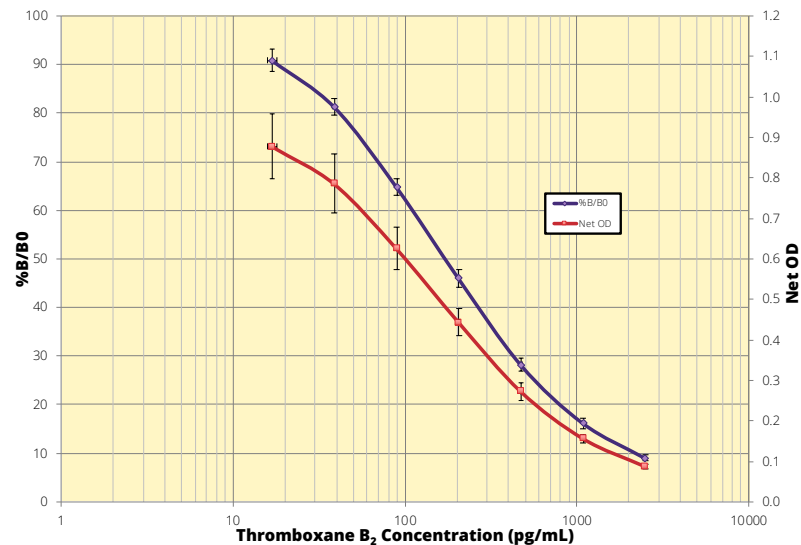
Validation Data

Sample	Mean OD	Net OD	%B/B0	Sample TXB ₂ Concentration (pg/mL)
NSB	0.076	0.000	-	-
Standard 1	0.163	0.087	9.0	2,500
Standard 2	0.232	0.156	16.2	1,087
Standard 3	0.348	0.272	28.2	473
Standard 4	0.519	0.443	46.0	206
Standard 5	0.702	0.626	64.8	89.3
Standard 6	0.862	0.786	81.3	38.8
Standard 7	0.954	0.878	90.9	16.9
B0	1.050	0.974	100	0
Sample 1	0.369	0.293	30.1	429
Sample 2	0.789	0.713	73.0	61.1

Sensitivity: 11.2 pg/mL

Limit of Detection: 11.0 pg/mL

Standard Curve



⚠ Always run your own standard curve. This data should NOT be used to interpret experimental results.

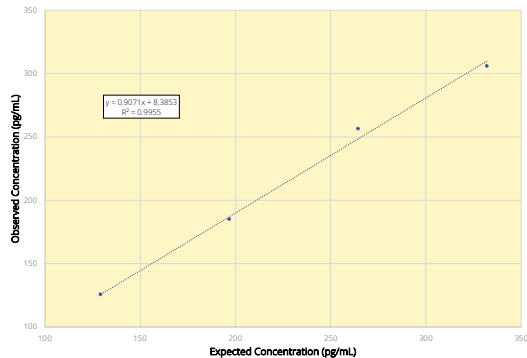


Validation Data

Linearity

Linearity was determined in human serum by diluting two samples with known TXB₂ concentrations. One sample had a TXB₂ concentration of 62.3 pg/mL (low serum), and one had a TXB₂ level of 400 pg/mL (high serum). The two samples were mixed in the ratios given below, and the measured concentrations were compared to the expected values for each given ratio.

Low Serum	High Serum	Expected Concentration (pg/mL)	Observed Concentration (pg/mL)	% Recovery
80%	20%	130	125	96.6
60%	40%	197	185	93.6
40%	60%	265	256	96.8
20%	80%	332	306	92.0
Mean Recovery				94.7



Intra Assay and Inter Assay Precision

For intra assay precision, three serum samples were diluted in 1X Assay Buffer and 22 replicates were run in one assay. For inter assay precision, three serum samples were diluted in 1X Assay Buffer and duplicates of each sample were run in twenty assays run over multiple days by multiple operators. %CV represents the variation in concentration (not optical density) as determined using a reference standard curve.

Sample	Intra Assay Precision		Inter Assay Precision	
	TXB ₂ Concentration (pg/mL)	% CV	TXB ₂ Concentration (pg/mL)	% CV
1	451	4.5	429	7.6
2	171	8.2	158	6.3
3	71.0	8.3	61.0	8.3

Cross Reactivity & Interferents

Cross Reactivity

The following cross reactants were tested in the assay at 40x, 4.0x, 0.4x and 0.04x concentration of the highest standard. Percent cross-reactivity was calculated comparing observed concentration to actual concentration of each cross reactant.

Eicosanoid	Cross Reactivity (%)
Thromboxane B₂	100
2,3-dinor Thromboxane B₂	35.1
Thromboxane B₃	20.9
11-dehydro Thromboxane B₂	2.2
Prostaglandin D₂	0.9
11-dehydro Thromboxane B₃	0.7
Prostaglandin I₂	< 0.01

Interference

Potentially interfering substances were evaluated in the assay and the change in signal was calculated.

Interferent	Effect
DMSO (2.5%)	9.8% decrease
Ethanol (1.25%)	6.8% decrease
Methanol (10%)	4% decrease
SDS (0.6%)	33.8% decrease – Do Not Use
TritonX-100 (10%)	0.9% decrease
Tween-20 (0.6%)	33.9% decrease – Do Not Use
Hemoglobin (40 mg/dL)	4.1% increase
Bilirubin (5 mg/dL)	1.6% increase



Customer Segmentation

1. Academic Researchers

- **Priority Needs:** High quality, reliable results for publishable data.
- **Key Features:** Robust technical support, competitive pricing for limited budgets, detailed protocol and documentation.
- **Marketing Focus:** Emphasize the kit's precision and reliability, along with Arbor Assays' reputation for supporting academic research.

2. Pharmaceutical Companies

- **Priority Needs:** Consistency and scalability for drug development and trials.
- **Key Features:** Flexible and bulk packaging options, expedited shipping, compliance with regulatory standards.
- **Marketing Focus:** Highlight the kit's scalability, consistency, and how it fits into regulatory frameworks for drug testing and development.

3. Clinical Research Laboratories

- **Priority Needs:** Accuracy and reliability for patient sample testing.
- **Key Features:** High sensitivity and specificity, rapid turnaround time, ease of use.
- **Marketing Focus:** Stress the kit's accuracy, reliability, and ease of integration into existing workflows.

4. Biotechnology Firms

- **Priority Needs:** Innovative tools for R&D projects.
- **Key Features:** Cutting-edge technology, flexibility in assay design, collaboration opportunities.
- **Marketing Focus:** Emphasize the Arbor Assays' innovative aspects and how the kit can aid in groundbreaking research and development.

5. Government and Public Health Entities

- **Priority Needs:** Tools for public health research and surveillance.
- **Key Features:** Cost-effectiveness for large-scale studies, robustness in diverse conditions, comprehensive technical support.
- **Marketing Focus:** Focus on the kit's cost-effectiveness and reliability.

6. Contract Research Organizations (CROs)

- **Priority Needs:** Versatility for varied client projects, quick adaptation to different study requirements.
- **Key Features:** Flexible assay formats, broad dynamic range, strong customer service.
- **Marketing Focus:** Showcase the kit's versatility and adaptability for a wide range of research projects.



Competitive Landscape

Company	Catalog Number	Kit Name	Sensitivity (pg/mL)	Assay Range (pg/mL)	Assay Time	Time to Ship	Support	List Price
Arbor Assays	K092-H1 K092-H5	DetectX® Thromboxane B ₂ (TXB ₂) ELISA Kit	11.2	16.9 – 2,500.0	2.5 h	In-Stock	Support when you need it via phone or email	\$430 \$1720
R&D Systems	KGE011	Thromboxane B2 Parameter Assay Kit	310.0	300.0 – 20,000.0	3.5 h	In-Stock	Complex phone menu, long hold times	\$435
Abcam	ab133022	Thromboxane B2 ELISA Kit	10.54	13.7 – 10,000.0	3.0 h	In-Stock	Complex phone menu, long hold times	\$730
Thermo-Fisher (Invitrogen)	EEL061	Human Thromboxane B2 ELISA Kit	46.88	78.1 – 5,000.0	3.5 h	Log in to determine	Complex phone menu, long hold times	\$618
Enzo	ADI-900-002	TXB2 ELISA Kit	10.54	13.7 – 10,000.0	3.0 h	Log in to determine	Complex phone menu, long hold times	\$461
Cayman Chemical	501020	Thromboxane B2 ELISA Kit	5.0	1.6 – 1,000.0	18.0 - 20.0 h	In-Stock	Phone or Technical Support Web Form	\$332





Marketing Materials

Inflammation

1 page Brochure

INFLAMMATION

ARBOR ASSAYS

INTERACTIVE SOLUTIONS™

Inflammation is a complex biological response to harmful stimuli such as pathogens, damaged cells, or irritants. Chronic inflammation has been linked to diseases including cancer, neurodegeneration, heart disease, and autoimmune disorders. The molecular mechanisms and biological mediators of inflammatory response have long been foci of scientific study.

Arbor Assays Advantages

- ✓ Not an always in-stock and ready to ship
- ✓ High quality reagents, manufactured in Ann Arbor, MI, USA

- ✓ Consistent, rapid results
- ✓ Easy-to-follow protocols

Featured DetectX™ Inflammation Kits

Prostaglandin E₂ (PGE₂) Multi-Form ELISA Kit

- Regular low volume input and high sensitivity options
- Flexible assay time
- Validated in a wide variety of sample types

Thromboxane B₂ (TXB₂) ELISA Kit

- New
- 2.5-hour assay time
- Validated in a wide variety of sample types

TNF- α Inflammation ELISA Kit

- New
- 4-hour assay time
- Measure mouse TNF- α from serum and plasma samples

DetectX™ Inflammation Assays Kits

62673-04	Z-12 Cyclic GMP ELISA Kit	62673-01	Z-2 Cyclic GMP STRIP-Read RT-PCR Detection Kit
62673-03	Z-7 Cyclic GMP ELISA Kit	62673-02	Allopathic Cyclic GMP ELISA Kit
62673-05	Agg-Induced ADP-ATP Chemoluminescent and Colorimetric ELISA Kits	62673-06	Agg-Induced ADP-ATP ELISA Kit
62673-07	Agg-Induced Histamine ELISA Kit	62673-08	Agg-Induced Histamine ELISA Kit
62673-08	Cytokine Chemoluminescent and Colorimetric ELISA Kits	62673-09	Cytokine Chemoluminescent and Colorimetric ELISA Kits
62673-10	Cytokine Protein ELISA ELISA Kits	62673-11	Cytokine Protein ELISA ELISA Kits
62673-12	Cyclic AMP Assay Chemoluminescent and Colorimetric ELISA Kits	62673-13	Cyclic AMP Assay Direct ELISA ELISA Kits
62673-14	DAG Kinase ELISA ELISA Kit	62673-15	DAG Kinase ELISA ELISA Kit
62673-16	Endothelin-1 ELISA ELISA Kit	62673-17	Endothelin-1 ELISA ELISA Kit
62673-18	Hemoglobin Colorimetric Detection Kit	62673-19	Hemoglobin High-Sensitivity Colorimetric Detection Kit
62673-20	Histamine Peroxidase Colorimetric and Colorimetric Detection Kits	62673-21	Histamine Peroxidase Colorimetric and Colorimetric Detection Kits
62673-22	Myeloperoxidase Human ELISA Kit	62673-23	Myeloperoxidase Human ELISA Kit
62673-24	Nitric Oxide Colorimetric Detection Kit	62673-25	Nitric Oxide Colorimetric Detection Kit
62673-26	Osteopontin (OPN) Human ELISA Kit	62673-27	Osteopontin (OPN) Human ELISA Kit
62673-28	Prostaglandin H ₂ Synthase (COX-2) ELISA Kit	62673-29	Prostaglandin H ₂ Synthase (COX-2) ELISA Kit
62673-30	Protein Kinase A (PKA) Human Activity Kit	62673-31	Protein Kinase A (PKA) Human Activity Kit
62673-32	PTX Human ELISA Kit	62673-33	PTX Human ELISA Kit
62673-34	Thromboxane B ₂ (TXB ₂) ELISA Kit	62673-35	Thromboxane B ₂ (TXB ₂) ELISA Kit
62673-36	TNF- α Human ELISA Kit	62673-37	TNF- α Human ELISA Kit

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1 page Brochure

DetectX Thromboxane B₂ (TXB₂) ELISA Kit

What is Thromboxane B₂?

Thromboxane B₂ (TXB₂) (C20:4OH₂) is a stable metabolite produced by Thromboxane A₂ (TXA₂) involved in platelet activation and aggregation. The coxycyclic TXA₂ is the predominant product of cyclooxygenase, specifically COX-2. COX-2 catalyzes the first two steps of prostaglandin biosynthesis. PGs play a key role in generation of an inflammatory response and are primary targets for nonsteroidal anti-inflammatory drugs (NSAIDs). TXB₂ itself has prothrombotic properties and is a known vasoconstrictor. It is also thought to play a role in the pathogenesis of myocardial infarction stroke, atherosclerosis, and bronchial asthma. TXB₂ is extremely unstable, with a half-life of 30 seconds. Therefore TXB₂ after it is hydrolyzed from active TXA₂ is the ideal candidate for a stable metabolite measurement to use for an abundance of conditions and measuring anti-platelet drug effectiveness.

Key Features

- Catalog # K200-0101, K200-0145
- 2 x 96 wells/tin
- Sensitivity: 11.2 pg/mL
- Standard curve range: 169 - 2,500 pg/mL
- Colorimetric Readout

Complete your study with additional kits from our inflammation Research Area

- 0001 Ang II Receptor Antagonist (ARX) ELISA Kit
- 0004 Anti-Nerve Growth Factor (NGF) ELISA Kit
- 0008 Human IL-8 Receptor (CXCR1) (HMR) ELISA Kit
- 0009 C-Reactive Protein (CRP) ELISA Kit
- 0010 Cyclic AMP (cAMP) ELISA Kit
- 0015 Cyclic GMP (cGMP) ELISA Kit
- 0019 DNA Damage (ELISA Kit)
- 0021 Endothelin-1 (ET-1) ELISA Kit
- 0024 Hydrogen Peroxide Detection Kit
- 0025 Nitric Oxide-Carbonyl Derivative Detection Kit
- 0027 Complement C3a Human ELISA Kit
- 0031 Prostaglandin Endoperoxide Synthase (COX) ELISA Kit
- 0035 PGE₂ Human ELISA Kit
- 0039 TNF-alpha Mouse ELISA Kit

Typical Standard Curve

ArborsAsay Advantages

- Fast and easy to make and ship
- Helpful customer and technical support when you need it
- High quality reagents, manufactured in Ann Arbor, MI
- Consistent, ready results
- Easy to follow protocols


As an employee owned business, the team at ArborsAsay is committed to providing high quality research kits as you are to your research.

Check out the full list at www.ArborsAsays.com/inflammation

YU FANG, PH.D. CO-FOUNDER

www.ArborsAsays.com

Kit Release Blog




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Arbor Assays™ New TBX₂ ELISA Kit is Here: Upgrade Your Platelet and Cardiovascular Research!



A yellow rectangular graphic with rounded corners. At the top, it says "New Product Launch!" in bold black text. In the center is a circular logo with a blue and purple gradient, featuring a stylized white 'A' shape. Below the logo, it says "TBX₂ ELISA Kit" in bold black text.

Publication Date

03/03/2024

Category

ELISA

Keywords

Cardiovascular Health

Related Tags

Research remains a critical in advancing our understanding of various physiological and pathological processes. With the launch of the **DetectX[®] TBX₂ ELISA Kit** (D9001-01), Arbor Assays is pleased to support the scientific research community in this important research. TBX₂ is a key player in platelet activation and coagulation. The new kit will act as an indispensable tool for researchers studying endothelial health, platelet activation, and the effectiveness of anti-coagulation therapies.

What is TBX₂?

TBX₂ is an essential member of Thrombospondin (TSP) family, and plays an important role in platelet activation and coagulation during vascular disease. Research has also revealed that this protein family is a particularly useful in assessing the efficacy of anti-coagulation therapies. Changes in TBX₂ levels in biological samples like plasma, urine, and other can be indicative of various vascular diseases and conditions.


Who Benefits From the DetectX[®] TBX₂ ELISA Kit?

This kit is supported for several research areas in inflammation and metabolic stress, including:

- Cardiovascular research, especially in studying platelet function and thrombosis
- Identifying and assessing therapies, understanding the effectiveness of agents
- Investigating the pathophysiology of vascular diseases such as atherosclerosis
- Clinical research to correlate laboratory test results with clinical outcomes

Why Choose an Arbor Assays Kit for TBX₂ Measurement?

Product Manual


**ARBOR
ASSAYS**

**DetectX[®] Thromboxane B₂ (TXB₂)
ELISA Kit**

1 Plate Kit – Catalog No. K0502-H11
5 Plate Kit – Catalog No. K0502-H15

Sample Types Tested:
Serum, EDTA Plasma, Heparin Plasma, Urine, Tissue Culture Media

Please read this insert completely prior to using the product. For research use only.
Not for use in diagnostic procedures.
www.ArborAssays.com

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New Product Suggestions

We prioritize products in our pipeline based on Distributor and Customer suggestions.

If you can't find a particular kit, we can develop it!

Please send all new product ideas to
cassie@arborassays.com

