straumann

TOOTH PRESERVATION

COMMITTED TO
SIMPLY DOING MORE
FOR DENTAL PROFESSIONALS

WHY REPAIR WHEN YOU CAN REGENERATE?

Regeneration is the more natural and reliable way of restoring the positive properties of body-inherent processes. The aim of regeneration is to reproduce and reconstruct a lost or injured part in such a way that the architecture and function of the lost or injured tissues are completely restored.

The Straumann® Regenerative System offers you the solution to oral tissue regeneration – from tooth preservation to tooth replacement

Committed to providing you with a wide range of options for various requirements in the field of oral tissue regeneration, we've developed a comprehensive solution to meet all of your needs.

In addition to Straumann® Emdogain, the standard treatment for periodontal regeneration, we also offer several easy-to-use products designed for use in bone regeneration procedures before or during implantation – from tooth preservation to tooth replacement.

Our aim is to provide you with various regenerative solutions that are predictable as well as backed by proven scientific evidence. Everything from a single source – in trusted Straumann quality.

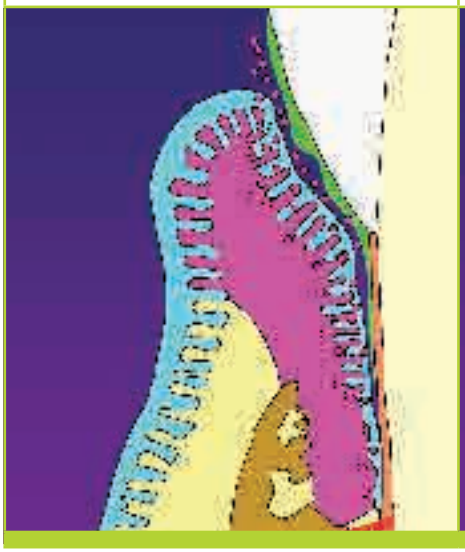
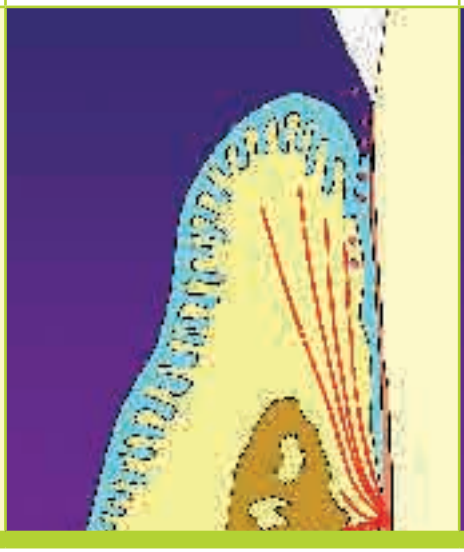
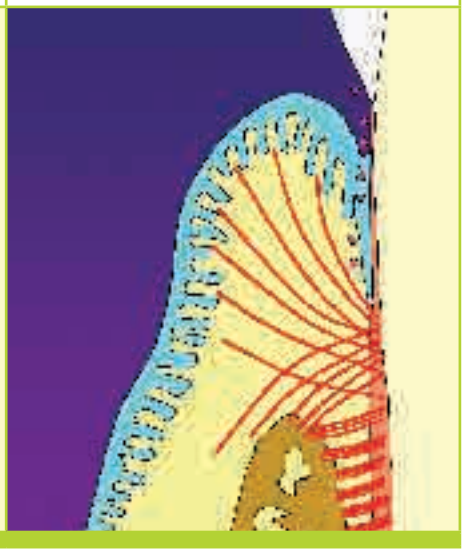
Straumann – committed to simply doing more for dental professionals

PERIODONTAL REGENERATION

Periodontal regeneration refers to the reconstruction of a new functional attachment through reformation of all tissues of the periodontium:

- Cementum
- Periodontal ligament (desmodont)
- Alveolar bone

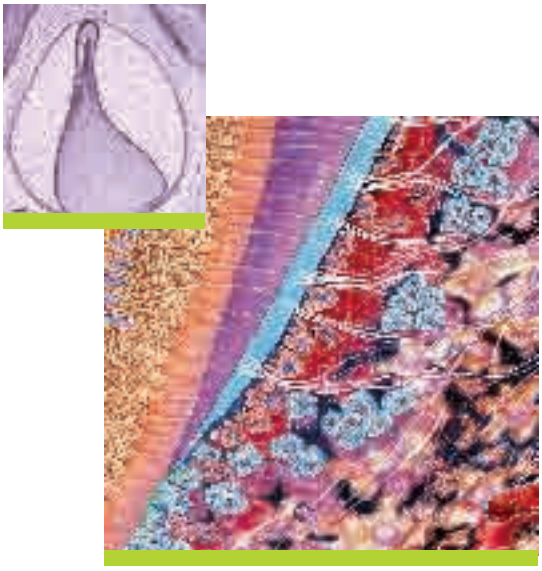
Regeneration compared to reparation

Periodontitis	Reparation	Regeneration
▪ Infection ▪ Inflammation ▪ Bleeding ▼ ▪ Attachment loss ▪ Bone loss ▪ Tooth loss	▪ Wound treatment that does not fully restore the previous biological structure or function ▪ Epithelial growth down to the pre-operative level ▪ Unpredictable long-term results	▪ Re-establishment of true functional attachment ▪ No epithelial growth down to the preoperative level ▪ Predictable long-term results
		

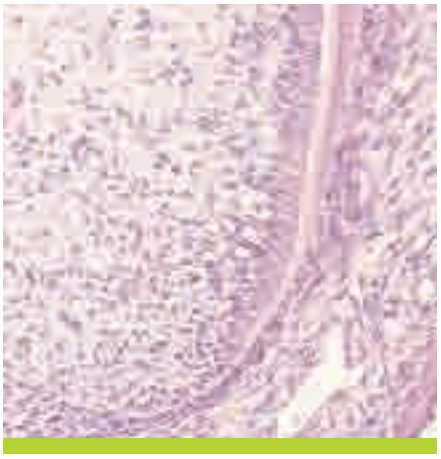
By courtesy of Dr. D. Bosshardt

Using enamel matrix proteins to stimulate periodontal regeneration represents a novel approach to tissue regeneration. Enamel proteins have the special characteristics of being both proliferation and differentiation factors and also possess the ability to stimulate both hard (bone, cementum) and soft (periodontal) cells.

The development of Straumann® Emdogain and Straumann® Emdogain PLUS is based on a breakthrough in the knowledge of the basic biology of tooth development, enamel matrix proteins, a complex of native proteins that play a key role in the development of tooth-supporting tissues. Comprised of various proteins, which self-assemble to create this matrix, Straumann® Emdogain mediates the formation of cementum on the root of the developing tooth, providing a foundation for all necessary tissues associated with a true functional attachment.



Deposit of enamel matrix proteins onto a developing root surface is an essential step preceding formation of cementum.



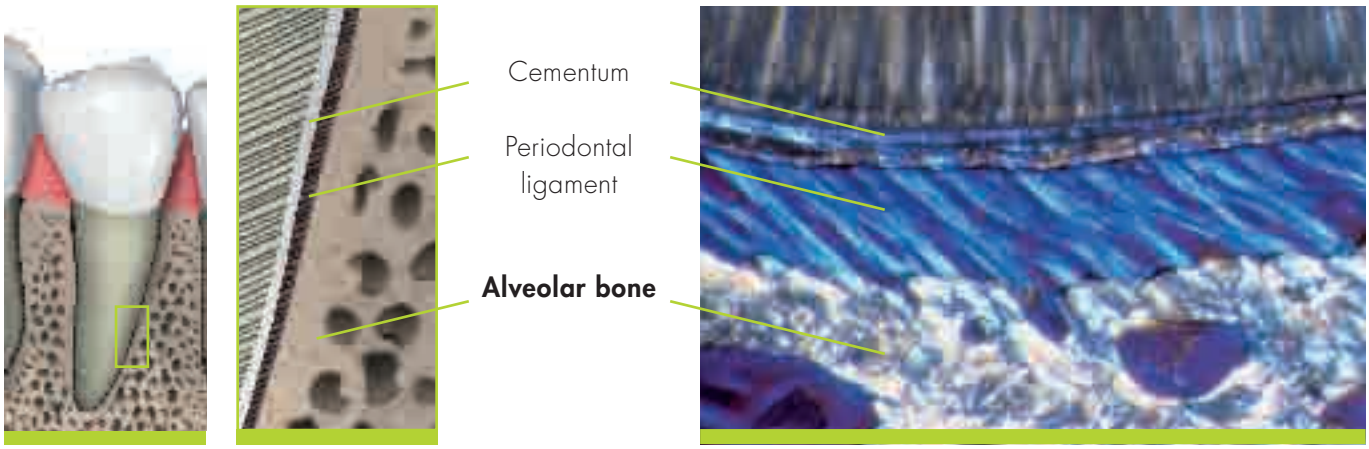
Formation of a periodontal ligament and alveolar bone is dependent on formation of cementum.

Moreover, new data suggest that these proteins also contain BMP-like proteins and stimulate angiogenesis. No other substance used for periodontal regeneration exibits such characteristics.

Dr. David L. Cochran, San Antonio, Texas (USA)

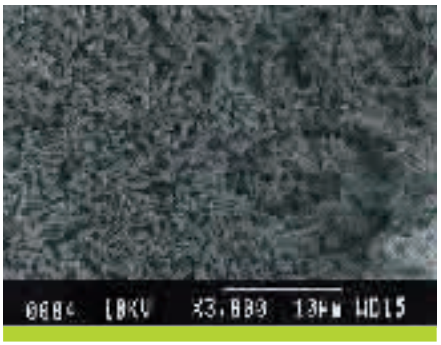
THE REGENERATIVE APPROACH

The aim of periodontal treatment is the re-establishment of a full functional attachment. This is best achieved through regeneration:



Effects at the cellular level

By mimicking the biological processes of natural tooth development, Straumann® Emdogain forms an insoluble three dimensional extra-cellular matrix. This matrix remains on the root surface for 2–4 weeks and allows for the selective colonization, proliferation and differentiation of cells.



We have been using Straumann® Emdogain at our clinic in Bern for the past six years. The beauty of Straumann® Emdogain lies in the simplicity of the handling, especially compared to the use of membranes for guided tissue regeneration.

The following steps describe how this process works:





Days

The amelogenins form a matrix layer on the root surface. Contact to cells of the healthy part of the desmodontium is established.

Adduction and proliferation of mesenchymal cells from the healthy part of the desmodontium

Weeks

The cells secrete natural and specific cytokines and autokrine substances, which promote the required proliferation.

Attraction and differentiation to cementoblasts, begin of formation of the cement matrix in which the desmodontal fibres will be fixed.





Months

Anchoring of desmodontal fibers in the root surface

Filling of defect with newly formed desmodontal tissue

New alveolar bone grows on the root surface and in the defect gap.

One Year

Regeneration of the desmodontium; a new functional attachment has been formed.

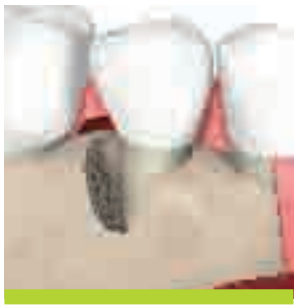
Using Straumann® Emdogain we always see very nice wound healing and in many cases astonishing amounts of clinical attchment gain.

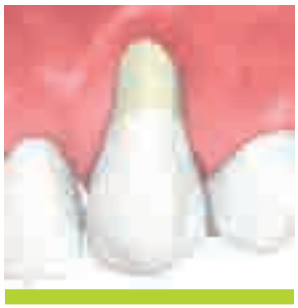
Dr. med. dent. Bjarni E. Pjetursson, DDS, Periodontist, Berne (Switzerland)

INDICATIONS

Straumann® Emdogain is used as an adjunct to periodontal surgery, topically applied to exposed root surfaces to treat intrabony defects due to moderate or severe periodontitis. It has been proven to be effective in:

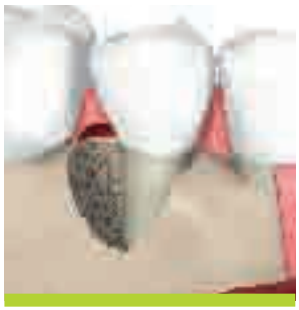
- One-wall, two-wall and three-wall intrabony defects
- Class II mandibular furcation defects
- Recession defects

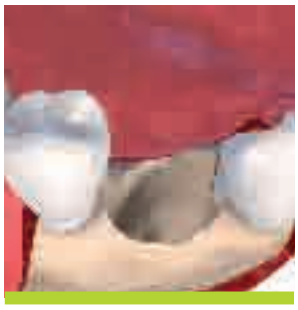




Straumann® Emdogain PLUS is indicated for all intrabony defects in which tissue support and stability is required such as:

- Wide defects
- Furcations
- Exposed roots at extraction sites





> For me, Straumann® Emdogain is the most alluring periodontal treatment option.
>
> **Dr. JP. Genon, Auxerre (France)**

THE PRODUCT

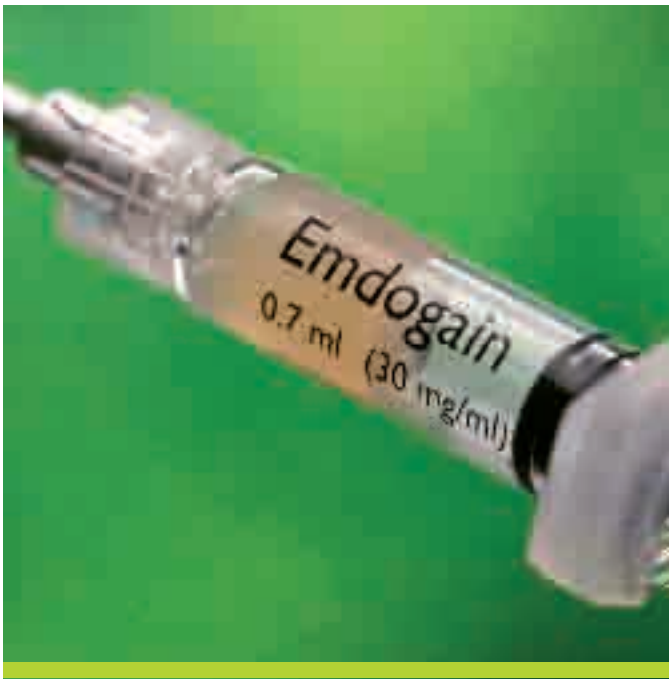
Straumann® Emdogain is a biology-based product composed of enamel matrix proteins (Amelogenin being the main protein), approximately 6,5% wt. PGA (Propylene Glycol Alginate) and water. The 0,3 ml syringe contains about 9 mg of Amelogenin, a 0,7 ml syringe about 21 mg.
Amelogenin, derived from the Hertwig's epithelial root sheath, is the key protein involved in the formation of periodontium tissues.

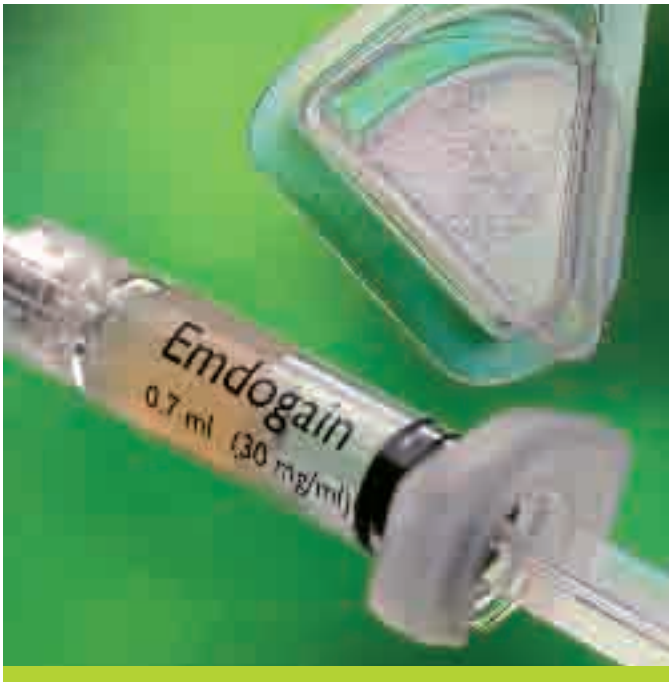
The safety of Straumann® Emdogain has been carefully documented in a number of intensive toxicology programs. No adverse effects in professional clinical studies have been attributed to the use of Straumann® Emdogain.

Straumann® Emdogain PLUS contains Straumann® Emdogain 0,7 ml, 1 pack of Straumann® BoneCeramic 400–700 (400–700 µm diameter, each pack containing 0,25 g) and Straumann® PrefGel 0,6 ml (ready-to-use syringe).

Straumann® PrefGel is a pH neutral, 24% EDTA root surface conditioner, offering gentle yet effective removal of the "smear layer" during periodontal surgical procedures. During the treatment with Straumann® Emdogain, eliminating the smear layer ensures that the enamel matrix proteins are allowed to interact with and precipitate onto a clean root surface. This interaction forms the foundation on which cells begin to renew a functional attachment.

For optimal results prior to the application of Straumann® Emdogain and Straumann® Emdogain PLUS we recommend conditioning the root surface with Straumann® PrefGel.





Straumann® Emdogain's easy application, combined with its high success rate without post-operative complaints or complications, has allowed the once prevalent lack of acceptance on the patient side regarding surgical periodontal treatment to practically disappear.

T. Zickuhr, Düsseldorf (Germany)

TRUE FUNCTIONAL ADVANTAGES WITH STRAUMANN® EMDOGAIN

1.
Biology-based: Straumann® Emdogain **mimics normal periodontal development** in a **unique way.**

2.
Regenerates instead of repairs: Straumann® Emdogain enables the recreation of **all related tissues**, resulting in a solid **functional attachment.**

3.
One product covers 3 tissues: Straumann® Emdogain promotes the regeneration of three different tissues without any addition of external foreign growth factors.

4.
Recreates **endogenous attachment:** Straumann® Emdogain regenerates the patient's tissue lost through the pathological process of periodontitis.

5.
Effective and efficient: Straumann® Emdogain regenerates the endogenous structure of a complex system easily and without complications.

6.
Safe: Over 1'000'000 patients have been treated without causal side effects. Fewer complications occur than with other regenerative treatments. [14]

7.
Quality of life for patient: Better wound healing of soft tissue with less pain and swelling after surgical treatment.[15]

8.
Designed for ease of use: This translates to chair-time reduction. The application of Straumann® Emdogain is easy, fast and requires no special preparation. No further surgery necessary.

9.
Financially attractive: Thanks to its predictable results and easy handling Straumann® Emdogain offers additional treatment options which can lead to more referrals.

10.
Support and stability: Straumann® Emdogain PLUS offers tissue support for wide intrabony defects with our synthetical bone filler with its optimized morphology.

Maybe Straumann® Emdogain is not the "panacea" in periodontal regeneration, but it really has the potential to help us in a wide range of clinical situations. It constitutes a simple solution for a complex problem which indeed is regeneration. I'm using it in one-, two- and three-wall vertical defects with medium/large infrabony components and in some recession type defects. I use Straumann® Emdogain instead of

SCIENTIFIC RESEARCH SUPPORT

We have gone to great lengths to provide investigative evidence to determine the ability of the enamel matrix proteins to promote the supporting growth of the lost periodontal tissue. Consequently, studies were done on the preclinical, histological and clinical levels, as shown in the following chart.

	Evidence for	Indications	Method/ Material	Results	Conclusion(s)
Preclinical (clinically relevant model)	Periodontal regeneration[1]	Peridontal defects in baboons	Flap surgery with or without enamel matrix proteins	Significant regeneration of cementum, periodontal ligament with sharpey's fibers, new bone tissue Greater tissue formation with Straumann® Emdogain	No dependence on exogenous growth factors, bone replacement grafts, barrier membranes or combination
Human Histology	Periodonal regeneration[2]	Human teeth affected by periodontitis	Treatment with enamel matrix derivative 6 weeks before extraction	New vital bone-like tissue and de novo formation of mineralized connective tissue with EMD	Immediate vital autogenous tissue growth in a time-critical situation

any other treatment because the results are really predictable on the above mentioned situations, and the post-op healing process of the soft tissues, is really nice. (Anyway, I would like to improve the management of Straumann® Emdogain by increasing the density of the vehicle or even develop a "slow releasing device" of delivering Straumann® Emdogain.)

Dr. Juan José Aranda Macera, Madrid (Spain)

	Evidence for	Indications	Method/Material
Clinical	Periodontal pocket depth (PPD) reduction[3]	Angular osseous defects	Flap surgery with or without Straumann® Emdogain
	Clinical attachment level (CAL) gain[4]	Angular osseous defects	Flap surgery with or without Straumann® Emdogain
	Bone fill[5] and regeneration of periodontal attachment[6]	1- and 2-wall defects	Modified Widman flap (MWF) with Straumann® Emdogain or placebo
	Root coverage and increased keratinized tissue[7]	Miller Class I, II and III recession defects	CAF with or without Straumann® Emdogain
	Degree of root coverage[8]	Recession defects of ≥ 4 mm	CAF with subepithelial connective tissue or CAF with Straumann® Emdogain
	Better results compared to GTR[9]	Class II mandibular furcation defects	Straumann® Emdogain or bioresorbable membrane
	Long-term results[10/11]	Intrabony defects	Treatment with Straumann® Emdogain Re-entry
	Increased effect over time[12]	Deap intrabony defect (PD ≥ 5 mm, CAL ≥ 6 mm, ≥ 3 mm intrabony defect)	Prospective case series
	Customer and patient satisfaction[13]	Recession defects of ≥ 4 mm	CAF with subepithelial connective tissue or CAF with Straumann® Emdogain
	Higher quality of life for patient[14]	Class II mandibular furcation defects	Straumann® Emdogain or bioresorbable membrane
	Complication free treatment[15]	Intrabony defects of ≥ 3 mm	Straumann® Emdogain or GTR membrane
	Better wound healing[16]	Recession defects of ≥ 4 mm	CAF with subepithelial connective tissue or CAF with Straumann® Emdogain
	Better predictability and outcome[17]	Deep intrabony defects ≥ 3 mm	Prospective multicentre randomized controlled study of papilla preservation flap surgery

Straumann® Emdogain provides me with an exceptional possibility to fill in the gaps using a regenerative method during surgical periodontal treatment. Furthermore, its application in connection with surgical curettage and recession

Results	Conclusion(s)
Up to 8 mm PPD reduction, 3 times greater defect fill with Straumann® Emdogain	Treatment with Straumann® Emdogain superior to flap surgery alone.
> 4,5 mm CAL gain with Straumann® Emdogain and 1,5 mm more compared to flap surgery	Treatment with Straumann® Emdogain superior to flap surgery alone.
36% gain of initial bone loss and 60–70% bone fill	Straumann® Emdogain regenerates periodontal attachment and promotes bone gain even in advanced periodontal defects.
80–96% root coverage and significant increase of keratinized tissues	Better results in the treatment of recession with Straumann® Emdogain
4–8 mm root coverage and better early healing in the test group	Addition of Straumann® Emdogain to CAF results in root coverage similar to subepithelial graft but without morbidity and complications.
Significantly greater reduction in horizontal furcation depth with Straumann® Emdogain	Better clinical results following enamel matrix derivative compared to membrane therapy
Stable results after 4/5/7 years	Effects of Straumann® Emdogain lasts at least 4 and up to 7 years.
4,3 mm CAL gain after 1 year, further 0,3 mm CAL gain after 5 years, 4,9 mm PD reduction, further 1,1 mm after 5 years	Clinical gain with Straumann® Emdogain stable over time and demonstrate further improvement.
Same results without the intervention and potential complication to gain connective tissue	Easy to use, less time consuming, no risk of complications
50% less postoperative pain/swelling following enamel matrix derivative	Higher quality of life for patients compared to membrane therapy
94% less complications occurred in the patients treated with Straumann® Emdogain	Straumann® Emdogain displayed safer compared to GTR membranes.
Better early healing in the test group at 1 week	Straumann® Emdogain has a beneficial effect on the early wound healing.
Significant higher CAL and better pocket reduction	Straumann® Emdogain increased the predictability of clinically significant results and decreased the probability of obtaining negligible or no gains in CAL

covering guarantees wound healing without complications. Straumann® Emdogain is easy to apply and enjoys wide acceptance among my patients.

Dr. Gerwalt Muhle, Berlin (Germany)

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Many regenerative solutions, often introduced with great excitement, demonstrate only modest results over time. Straumann® Emdogain proves in study after study that it is as effective as any other regenerative option. That and its ease of use make it a winner in our practice.

Michael K. McGuire, D.D.S., Houston, Texas (USA)

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