THE BURDEN OF PROOF
MECHANISM OF ACTION

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT™ IS BOUND TO THE ANORGANIC BONE MATRIX AND ENSURES BONE GROWS WHERE YOU WANT IT.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT INCREASES THE NUMBER OF VIVABLE OSTEOGENIC CELLS ATTACHED.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT CAUSES STEM CELL DIFFERENTIATION TO VIVABLE OSTEOGENIC CELLS.


MECHANISM OF ACTION

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN INCREASED EXPRESSION OF ALKALINE PHOSPHATASE (AN IMPORTANT ENZYME IN THE MINERALIZATION PROCESS) LEADING TO EARLY BONE FORMATION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN INCREASED EXPRESSION OF BONE MORPHOGENIC PROTEIN (BMP) LEADING TO EARLY BONE FORMATION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT IS ABLE TO UP- AND DOWN-REGULATE SPECIFIC GENE EXPRESSION RELATING TO CELL CYCLE REGULATION, APOPTOSIS, STRUCTURAL PROTEIN AND SIGNALLING TRANSDUCTION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES THE IMMEDIATE AND PROLONGED EXPRESSION OF TGF-B1 GROWTH FACTOR AT SIGNIFICANTLY HIGHER LEVELS THAN HYDROXYAPATITE ALONE.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT INCREASES THE EXPRESSION OF TGF-B1 AND BMP-2 TO TO ENHANCED TISSUE REGENERATIVE CAPACITY.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES THE EXPRESSION OF RUNX2 AND SP7 (IMPORTANT TRANSCRIPTION FACTORS INVOLVED IN OSTEOBLAST DIFFERENTIATION AND BONE FORMATION).

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES THE EXPRESSION OF FOSL1 (INVOLVED IN THE REGULATION OF BONE-SPECIFIC GENE EXPRESSION RELATING TO OSTEOBLAST DIFFERENTIATION).


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES THE EXPRESSION OF SPP1 AND BGLAP (TWO GENES EXPRESSED BY OSTEOBLASTS DURING THEIR EARLY DIFFERENTIATION) IN BONE MARROW DERIVED MESENCHYMAL STEM CELLS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT MODULATES GENE EXPRESSION RELATING TO MULTIPLE EXTRACELLULAR MATRIX GENES INCLUDING COL1A1 AND COL3A1.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT INFLUENCES MICRO-RNA EXPRESSION AND GENE EXPRESSION IN OSTEOBLAST-LIKE CELLS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES MORE RAPID CYTOSKELETAL DEVELOPMENT COMPARED TO UNTREATED SUBSTRATES.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN HIGHER EXPRESSION OF ALKALINE PHOSPHATASE (AN EARLY MARKER OF CELL PROLIFERATION) COMPARED TO OTHER BONE GRAFT SUBSTITUTES.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ENHANCES BONE MARROW STROMAL CELL ATTACHMENT, SPREADING AND ALIGNMENT, AND THE PROVISION OF BIOMIMETIC MICROENVIRONMENTS FOR OSTEOBLASTS LEADING TO BONE FORMATION.


MECHANISM OF ACTION

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES EARLY BONE FORMATION AT A SIGNIFICANTLY HIGHER RATE COMPARED TO NON-TREATED ANORGANIC BONE (HYDROXYAPATITE).


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN IMPROVED CELL VIABILITY COMPARED TO NON-TREATED ANORGANIC BONE (HYDROXYAPATITE) AND DEMINERALISED BONE ALLOGRAFT.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN INCREASED EXPRESSION OF TRANSFORMING GROWTH FACTOR-B1, WHICH IS BELIEVED TO BE IMPORTANT IN THE DEVELOPMENT, INDUCTION AND REPAIR OF BONE.

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN EARLY BONE FORMATION AND FUSION IN A PRE-CLINICAL SPINE MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN GREATER TISSUE VOLUME FRACTION AND THICKER TRABECULAE COMPARED TO ALLOGRAFT IN THE SHEEP FEMUR.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ACCELERATES BONE REGENERATION IN A PRE-CLINICAL OSTEOPOROTIC RAT MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ENHANCES BONE FORMATION COMPARED TO NON-TREATED ANORGANIC BONE (HYDROXYAPATITE) IN POSTEROLATERAL FUSION.

• Axelsen MG, Jespersen SM, Overgaard S, Ding M. Evaluation of cell binding peptide (P15) with silk fibre enhanced hydroxyapatite bone substitute for posterolateral spinal fusion in sheep. Eurospine 2015 Annual Meeting, Poster # P30.

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ENHANCES BONE-TO-IMPLANT CONTACT AND OSSEOINTEGRATION OF TITANIUM IMPLANTS IN PRE-CLINICAL ANIMAL MODELS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ENHANCES OSSEOINTEGRATION AND MECHANICAL PULL-OUT STRENGTH (2x) OF TITANIUM IMPLANTS IN A PORCINE ANIMAL MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN SIGNIFICANTLY FASTER BONE FORMATION IN PRE-CLINICAL LONG-BONE DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN SIGNIFICANTLY FASTER BONE FORMATION AND FUSION IN A PRE-CLINICAL CRANIAL MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN MORE BONE GROWTH COMPARED TO NON-TREATED ANORGANIC BONE (HYDROXYAPATITE) IN A RABBIT OSSEOUS DEFECT.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN EQUIVALENT FUSION RATES TO AUTOLOGOUS BONE IN AN OVINE LUMBAR FUSION MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN SUPERIOR FUSION RATES COMPARED TO AUTOGRAPH IN A GOAT CERVICAL FUSION MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN OPTIMUM HEALING OF SEGMENTAL CORTICAL BONE DEFECTS IN A RAT MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN ENHANCED NEW BONE FORMATION IN CORTICAL DEFECTS IN A RABBIT MODEL.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN FASTER NEW BONE FORMATION IN MAXILLARY SINUS DEFECTS COMPARED TO ALLOGRAFT.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ENHANCES FUSION IN THE MECHANICALLY DEMANDING PERIODONTAL ENVIRONMENT.


• Tehemar S, Hanes P, Sharawy M. Enhancement of osseointegration of implants placed into extraction sockets of healthy and periodontally diseased teeth by using graft material, an ePTFE membrane, or a combination. Clinical Implant Dentistry and Related Research 2003; 5(3): 193-211.


CLINICAL EVIDENCE

i-FACTOR PEPTIDE-ENHANCED BONE GRAFT EXHIBITS SUPERIOR CLINICAL OUTCOMES COMPARED TO AUTOGRAFT (THE ‘GOLD STANDARD’) IN ANTERIOR CERVICAL DISCECTOMY AND FUSION.


i-FACTOR PEPTIDE ENHANCED BONE GRAFT IS STATISTICALLY SIGNIFICANTLY SUPERIOR TO AUTOLOGOUS BONE IN FACILITATING FORMATION OF BRIDGING BONE INSIDE PLIF CAGES.


i-FACTOR PEPTIDE ENHANCED BONE GRAFT DEMONSTRATES A HIGH FUSION RATE AND CLINICAL IMPROVEMENTS COMPARABLE TO ALIF USING AUTOGRAFT OR BMP, BUT WITH A SUPERIOR SAFETY PROFILE AND LOWER COST.


i-FACTOR PEPTIDE ENHANCED BONE GRAFT PROVIDES A HIGH LEVEL OF BONE CONSOLIDATION IN CHALLENGING LONG-BONE NON-UNION AND DELAYED UNIONS.


i-FACTOR PEPTIDE ENHANCED BONE GRAFT PROVIDES A HIGHER RATE OF FUSION IN TRANSFORAMINAL LUMBAR INTERBODY FUSION COMPARED TO ACTIFUSE® AND VITOS®.


i-FACTOR PEPTIDE ENHANCED BONE GRAFT PROVIDES RELIABLE FUSION IN CERVICAL INTERBODY FUSION (80% FUSED AND 17% PROGRESSING TO FUSION AT 26 WEEKS FOLLOW-UP).


i-FACTOR PEPTIDE ENHANCED BONE GRAFT RESTORES NEAR NORMAL BONE POROSITY AND TRABECULAR ORIENTATION IN ACDF.

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT EXHIBITS GREATER DEFECT FILL COMPARED TO FREEZE-DRIED BONE ALLOGRAFT AND OPEN-FLAP DEBRIDEMENT IN PERIDONTAL OSSEOUS DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT EXHIBITS GREATER DEFECT FILL AND SUPERIOR CLINICAL RESULTS COMPARED TO ANORGANIC HYDROXYAPATITE BONE MATRIX IN PERIDONTAL OSSEOUS DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT IS EFFECTIVE IN THE LONG-TERM MANAGEMENT OF INFRABONY DEFECTS AFTER THREE YEAR FOLLOW-UP.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT OFFERS SIGNIFICANTLY IMPROVED DEFECT FILL AND CLINICAL OUTCOMES COMPARED TO OPEN-FLAP DEBRIDEMENT.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT SIGNIFICANTLY INCREASES THE BONE REGENERATION IN COMBINATION WITH PLATELET RICH PLASMA (PRP) COMPARED TO PRP ALONE IN CLINICAL INFRABONY DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT ACCELERATES NEW BONE FORMATION AND INCREASES BONE MINERAL DENSITY COMPARED TO NATIVE BONE IN MAXILLARY SINUS AUGMENTATION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT SIGNIFICANTLY IMPROVED DEFECT FILL COMPARED TO BASELINE PARAMETERS IN PERIDONTAL OSSEOUS DEFECTS.

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT PROVIDES GREATER BONE FILL AND INCREASES BONE MINERAL DENSITY (93% vs 62%) COMPARED TO GUIDED REGENERATION IN THE TREATMENT OF AGGRESSIVE PERIODONTITIS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT PROVIDES GREATER TISSUE REGENERATION COMPARED TO BASELINE AND TISSUE FLAP CONTROL IN GINGIVAL RECESSION DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT PROVIDES SIGNIFICANTLY GREAT DEFECT FILL COMPARED TO OPEN-FLAP DEBRIDEMENT ALONE IN PERIODONTAL OSSEOUS DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT DEVELOPS LAMINAR BONE STRUCTURE FASTER THAN PLATELET-RICH PLASMA IN MAXILLARY SINUS AUGMENTATION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES TISSUE REGENERATION AND CLINICALLY MEANINGFUL IMPROVEMENT IN DEFECT FILL IN PERIODONTAL DEFECTS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES SIGNIFICANTLY HIGHER VITAL BONE VOLUME COMPARED TO HYDROXYAPATITE AND CANCELLOUS BONE IN HUMAN EXTRACTION SOCKETS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN SUPERIOR BONE DEFECT FILL AND BONE DENSITY COMPARED TO NON-GRAFTED SITES AND SIGNIFICANTLY REDUCES THE NEED FOR REVISION PROCEDURES IN ALVEOLAR RIDGE AUGMENTATION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN SUPERIOR BONE QUALITY AND QUANTIFY (3X MORE VITAL BONE) COMPARED TO HYDROXYAPATITE IN SINUS ELEVATION PROCEDURES.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT YIELDED BONE WHICH WAS HISTOLOGICALLY SIMILAR TO NATIVE BONE FOLLOWING RECONSTRUCTION IN HUMAN EXTRACTION SOCKETS.

THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT RESULTS IN BONE REGENERATION AND RESOLUTION OF CLINICAL SYMPTOMS ASSOCIATED WITH ACTIVE PERI-IMPLANTITIS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES EARLY BONE FORMATION WITH THE POTENTIAL TO PLACE INSTRUMENTATION EARLIER IN SINUS AUGMENTATIONS.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT HAS THE ABILITY TO PROVIDE LONG-TERM IMPLANT STABILITY AT 8-YEAR FOLLOW-UP IN ALVEOLAR RIDGE AUGMENTATION.


THE SYNTHETIC P-15 PEPTIDE IN i-FACTOR PEPTIDE-ENHANCED BONE GRAFT STIMULATES MORE BONE REGENERATION COMPARED TO HYDROXYPAPITITE IN MAXILLARY SINUS ELEVATION PROCEDURE.
