CASE STUDY:
L4/L5 ALIF with SCF Pure Crunch / BMP

PATIENT HISTORY
A 31-year-old male presents with L5 radiculopathy. He has left-sided buttock and leg pain and walks with an antalgic gait pattern. His pain is worse in the seated position and he sits in a position classically displayed by patients with sciatica. He is required to perform heavy lifting at work and finds himself limited. He describes his pain as 8/10 on the Visual Analogue Scale (VAS) and is otherwise in excellent health.

DIAGNOSIS
CT of the lumbar spine demonstrates L5 radiculopathy and degenerative disc disease at L4/L5.

SELECTED TREATMENT
Anterior lumbar interbody fusion (ALIF) procedure was performed. The patient was positioned in a supine position and the lumbar spine approached anteriorly. The intervertebral disc was removed and endplates prepared. A spinal interbody cage (Synfix, Synthes) was packed with cortical-cancellous allograft SCF Pure™ CRUNCH (Australian Biotechnologies) in combination with INFUSE® (Medtronic) (small dose). Following placement of the cage, further allograft bone was placed around the cage.

IMPLANTS
Synthes - Synfix 15x30/38 / 8 degrees were used for fixation L4/L5

RESULTS
CT scans performed 3 months following surgery demonstrate rapid fusion evident from solid walls of bone extending from the endplates above and below (Figure 1). Clinically, the patients’ symptoms improved significantly.

CONCLUSION
The ALIF procedure proves to be a very effective intervention for lumbar interbody fusion procedures with very rapid recovery. The use of SCF Pure™ Crunch allograft bone, alone as an osteoconductive bone graft matrix or in combination with an osteoinductive agent (e.g. Bone Morphogenetic Proteins), is showing great capability to improve fusion rates and alleviate the shortcomings of autograft.

CT Imaging Results:
Axial (A) sequential coronal (B, C, D) and sagittal (E) at 3 months post-operation demonstrating a rapid solid fusion at L4/L5

FIGURE 1
CASE STUDY: 
L5/S1 ALIF WITH SCF PURE CRUNCH

PATIENT HISTORY 
A 38-year-old male presents with low back pain and bilateral L5 pars defect with foraminal stenosis. The patient reports gradual worsening of symptoms over years and states a pain score of 9/10 on the Visual Analogue Scale (VAS). He does not smoke and his health is otherwise good.

DIAGNOSIS 
MRI of the lumbar spine demonstrates L5/S1 degenerative disk disease with retrolisthesis and foraminal stenosis.

SELECTED TREATMENT 
The patient underwent an anterior lumbar interbody fusion (ALIF) at L5/S1. The ALIF procedure involved discectomy, end plate preparation followed by the insertion of an ALIF interbody cage packed with unaided cortical-cancellous allograft SCF Pure™ CRUNCH allograft (Australian Biotechnologies).

IMPLANTS 
L5/S1 Orthotec ALIF cage and 3x25mm screws.

RESULTS 
Clinically, the patient experienced an excellent outcome with improvements in SS12 and ODI scores. The majority of the mechanical discogenic low back pain improved and the patient had minimal need for pain medication. CT scans performed 6 months following surgery show a solid union from endplate to endplate. (Figure 1)

CONCLUSION 
SCF Pure™ allograft bone has shown to be an effective osteoconductive bone graft choice in spinal fusion procedures. The use of allograft bone may alleviate drawbacks traditionally associated with autograft such as infection at the donor site and donor site morbidity, increased blood loss and operative times, insufficient quality of donor bone, and residual pain and cosmetic disadvantages.

Radiographic CT Imaging Results: Axial (A) sequential coronal (B, C, D) and sagittal (E) images at 6 months post-operation demonstrating solid arthrodesis at L5/S1.
CASE STUDY:  
L5/S1 ALIF WITH SCF PURE CRUNCH / BMP

PATIENT HISTORY  
A 38-year-old male presents with constant, severe lower back pain that radiates down the left lower limb. His back pain has been present since a backwards fall at work 6 years ago.

DIAGNOSIS  
MRI of the lumbar spine demonstrated L5/S1 degenerative disc disease with a central disc protrusion and lateral recess narrowing bilaterally and a left-sided L4/5 intraforaminal disc protrusion.

SELECTED TREATMENT  
The patient underwent a hybrid procedure involving an L4/5 disc replacement and a L5/S1 anterior lumbar interbody fusion. The anterior lumbar interbody fusion involved discectomy, end plate preparation and the insertion of a K2M Aleutian™ ALIF cage packed with cortical-cancellous allograft SCF Pure™ CRUNCH (Australian Biotechnologies) in combination with BMP-2 INFUSE® (Medtronic™) (small dose size).

IMPLANTS  
L5/S1 (K2M Aleutian™ ALIF 24 x 30mm, 10°) cage and integral screws  
L4/5 Spinal Kinetics M6-L 3° artificial lumbar disc

RESULTS  
Clinically, the patient experienced a significant reduction in lower back and lower limb pain. The patient was also able to mobilise significantly more post-operatively without significant pain. The radiographic results are encouraging and demonstrate solid arthrodesis at L5/S1 with mature bridging bone within the cage and bridging trabecular bone anterior to the cage, particularly evidence on the fine slice bony CT images.

CONCLUSION  
The use of SCF Pure™ allograft bone is an effective graft choice that can be successfully implemented in lumbar interbody fusion procedures for the treatment of degenerative pathologies of the lumbar spine.

CT Imaging Results: Axial (A) and sequential coronal images (B,C,and D) at 4 months post-operation, demonstrating early fusion with solid arthrodesis at L5/S1.
CASE STUDY:
C6/C7 ACDF WITH SCF PURE CRUNCH / BMA

PATIENT HISTORY
A 38-year-old female presents with left sided arm symptoms persisting for 2 years - pain in the base of the neck/shoulder radiating into the arm (scoring 8/10 on the Visual Analogue Scale (VAS)). The patient is a non-smoker and in general good health.

DIAGNOSIS
Annular tear and disk sequestration at C6/C7 with impingement of the left C7 nerve.

SELECTED TREATMENT
Anterior Cervical Discectomy and Fusion (ACDF) procedure was performed at C6/C7. The cervical spine was approached anteriorly and a discectomy performed prior to insertion of an interbody cage packed with cortical-cancellous allograft SCF Pure™ CRUNCH (Australian Biotechnologies) in combination with patient Bone Marrow Aspirate (BMA).

IMPLANTS
A-Spine Combo Ti/PEEK interbody cervical cage (7mm height)

RESULTS
CT scans performed 3 months following surgery showed a solid bone union across the prosthesis. Clinically the patient had a very satisfactory result. The symptoms improved markedly with neck pain and left C7 radiculopathy relieved.

CONCLUSION
SCF Pure™ allograft bone is showing great potential to act as an osteoconductive matrix. Excellent results have been achieved when using SCF Pure™ in interbody fusion procedures for treatment of pathologies associated with the cervical spine.

Figure 1 CT Imaging Results: Axial (A) sequential coronal (B, C, D) and sagittal (E) CT images at 3 months post-operation demonstrating a solid fusion at C6/C7.
CASE STUDY:
L4/5 AND L5/S1 ALIF WITH SCF PURE CRUNCH / BMP

PATIENT HISTORY
A 44-year-old male presents with lower back pain (10/10 VAS) that radiates down both legs. Back pain is present since a motor vehicle accident 1 year prior. He walks with an antalgic gait and uses a walking stick. He has not worked for a number of months due to pain.

DIAGNOSIS
L5 pars defect with spondylolisthesis L5/S1 and degenerative disc and facet changes at L4/L5.

SELECTED TREATMENT
The patient underwent an ALIF procedure at L4/L5 and L5/S1. Following discectomy, the endplates were prepared and cage (Synfix, Synthes) packed with cortical-cancellous allograft SCF Pure™ CRUNCH (Australian Biotechnologies) in combination with INFUSE® (Medtronic) (small dose).

IMPLANTS
Synfix 13.5x30/38mm/ 8 degrees (L4/L5) and Synfix 13.5x30/38mm/ 12 degrees (L4/L5) were used for fixation.

RESULTS
Radiographic results are encouraging with evidence of early fusion (solid bone bridging) seen at 3.5 months post-operatively at L4/L5 and L5/S1. (Figure 7). Clinical results include a significant reduction in low back pain and improved oDI scores.

CONCLUSION
The use of SCF Pure™ allograft bone is showing great promise as a graft choice for lumbar interbody fusion procedures for treatment of spondylolisthesis and degenerative pathologies of the lumbar spine.
Crunch is radio-opaque which allows progression and new bone formation to be easily monitored

Easily fills cages of all types - lumbar and cervical

Load sharing graft to participate with the cage structural support

Excellent bio-compatibility and osteoconductivity

Pure, sterile, natural corticocancellous bone - free of blood, lipids and residues

No reported adverse events with SCF Crunch in more than 5,000 Australian patients

Honouring the gift of donation,
Australian Biotechnologies manufactures and distributes life enhancing allograft tissue products for the Australian community.