

## Curriculum Vitae

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### Dr Philip Gan

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Dr Philip Gan is the Director of General Surgery at Southwest Healthcare Warrnambool in Victoria, Australia, and member of the Medical Advisory Committee of St John of God Hospital, Warrnambool. He is on the Victorian-Tasmanian Training Committee of the Royal Australasian College of Surgeons (RACS). Philip gained his medical degree from the University of Melbourne in 1991, and Fellowship of the Royal Australasian College of Surgeons (FRACS) in 2001.

His areas of interest include advanced laparoscopic surgery, in which he incorporates a variety of Minimally Invasive Surgery (MIS) techniques including reduced port, single port, mini-laparoscopy, percutaneous and hybrid trans-vaginal Natural Orifice Transluminal Endoscopic Surgery (NOTES) across a broad range of surgical procedures. These include bariatrics, fundoplication, splenectomy, cholecystectomy, colorectal and hernia surgery.

Dr Gan is the inventor of the LiVac™ Retractor and LiVac Sling™, both registered medical devices targeting the MIS field, and patented in multiple territories. He was Principle Investigator (PI) in both animal and clinical studies for the LiVac™ Retractor, and was the only regional centre PI during the pilot phase of the Australian national Bariatric Surgery Registry. In 2017, Livac Pty Ltd won the prestigious Australian Technologies Competition for ‘MedTech & Pharma’ and ‘Technology Company of the Year’.

Dr Gan has published and presented internationally through the United States, Europe and Asia on MIS techniques and the LiVac™ devices. He has been an invited guest speaker on MIS for Karl Storz (2016), Teleflex (2017 - 2019), the University of Adelaide Masters of Minimally Invasive Surgery course (2017- 2019), the 2<sup>nd</sup> International Consensus Conference on Laparoscopic Liver Resection in Iwate, Japan (2014), and was the first presenter at the inaugural Innovation Forum Session of the ASMBS (Las Vegas, USA 2016). He is a senior lecturer at the Deakin University School of Medicine.

**Education:**

- 2001            Diploma: Fellow of the Royal Australasian College of Surgeons (FRACS)
- 1985 – 1991    Degree: Bachelor of Medicine and Bachelor of Surgery (M.B.B.S.)  
University of Melbourne, Melbourne, Victoria, Australia
- Prizes: Crawford Mollison Prize in Forensic Medicine 1990

**Resident Medical Officer training:**

- 1992-1996      **Surgical Residency**, Melbourne AU.
- 1997-2000      **Accredited General Surgery Registrar**, RACS program

**Fellowship Training:**

- 2001            Gastrointestinal Surgery Unit Fellow,  
Monash Medical Centre, Clayton, Victoria, Australia

**Post-Fellowship Positions:**

- 2002 – current      VMO Consultant General Surgeon  
  
Southwest Healthcare Warrnambool, Victoria, Australia  
(Director of General Surgery from 1<sup>st</sup> May 2018)  
  
St John of God Hospital, Warrnambool, Victoria, Australia  
(Medical Advisory Committee member)
- 2012 – current      VMO Consultant General Surgeon  
Portland District Hospital, Portland, Victoria, Australia
- 2010 – current      Senior Lecturer, Deakin Medical School, Deakin University
- 2017 – current      Honorary invited guest lecturer and instructor, Masters of Minimally Invasive Surgery program, University of Adelaide.

**Professional Associations:**

Fellow, Royal Australasian College of Surgeons (FRACS)

Member of the Australian Medical Association (AMA)

Member of the Australia & New Zealand Metabolic and Obesity Surgery Society (ANZMOSS)

Member of the Society of Laparoendoscopic Surgeons (SLS)

Life member of Endoscopic & Laparoscopic Surgeons of Asia (ELSA)

Medical Registration: AHPRA (Australian Health Practitioner Registration Agency)

Regional general surgery in Australia requires a broad skillset, which encompasses many areas that have become sub-specialties in urban centres. Advanced laparoscopic surgery has been a particular area of interest and skills development. Dr Gan's laparoscopic expertise includes the following areas:

- Upper GI / Bariatric:** Laparoscopic fundoplication, Laparoscopic sleeve gastrectomy and mini gastric bypass, laparoscopic splenectomy.
- Hepatobiliary:** Laparoscopic cholecystectomy including reduced port, mini-laparoscopy and single port techniques.
- Hernia:** Laparoscopic inguinal and ventral hernia repairs.
- Colorectal:** Dr Gan has been performing laparoscopic bowel resections since February 2005. His was the first reported series of laparoscopic colectomies performed by a regional general surgical unit in Australia, and was presented at the RACS Annual Scientific Congress in 2008. Advanced techniques include hybrid transvaginal NOTES, reduced port and single port approaches. He has published and presented internationally on hybrid transvaginal NOTES – mini-laparoscopic colectomies.

### **Selected Publications:**

Lu T, Versace V, **Gan PSL**. The Effect of Total Cross-Sectional Area of Laparoscopic Ports in Elective Cholecystectomies: A Retrospective Analysis of 160 Patients in a Rural Victorian Health Service. RS030P ePoster at the RACS ASC, Sydney 7-11 May 2018. *ANZ Journal of Surgery*. 2018; Vol. 88. Issue S1. Doi:10.1111/ans.14536 (p. 177)

Moloney JM, **Gan PSL**. Hybrid Transvaginal NOTES and Mini-Laparoscopic Colectomy: Benefit Through Synergy. *JLS : Journal of the Society of Laparoendoscopic Surgeons*. 2016;20(4):e2016.00062. doi:10.4293/JLS.2016.00062.

**Gan PSL**. Vacuum Stabilization of the Spleen in Laparoscopic Splenectomy. *JLS : Journal of the Society of Laparoendoscopic Surgeons*. 2016;20(1):e2016.00013. doi:10.4293/JLS.2016.00013.

**Gan P**, Bingham J. A clinical study of the LiVac laparoscopic liver retractor system. *Surg Endosc*. 2016 Feb;30(2):789-96. doi: 10.1007/s00464-015-4272-0. Epub 2015 Jun 20.

**Gan P**. A novel liver retractor for reduced or single-port laparoscopic Surgery. *Surg Endosc*. Article first published online: 09 SEP 2013. DOI 10.1007/s00464-013-3178-y

Sivarajah G, **Gan P**. Initial Series Of SILS™ Cholecystectomy in an Australian Regional Centre. (2015), Abstract Journal for Rural Surgery. *ANZ J Surg*, 85: 100–103. doi:10.1111/ans.13095

<http://onlinelibrary.wiley.com/doi/10.1111/ans.13095/full>

Sivarajah, G., **Gan, P.** and Fischer, S. (2015), Control of proximal gastric bleeding through transgastric insertion of laparoscopic ports. *ANZ J Surg*, 85: 989–990. doi:10.1111/ans.12724

He C, Shen S, Sharard A and **Gan P**. Peritoneal Oleogranulomatosis After Laparoscopic Gastric Banding: A Case Report And Review Of The Literature. *ANZ J. Surg*. 2011; **81** (Suppl. 1) A11 (BT09P). Article first published online: 21 APR 2011. DOI: 10.1111/j.1445-2197.2011.05729.x

Gillespie C, **Gan P** and Page M. Primary Peritonitis In Streptococcal Toxic Shock Syndrome – A Case Report. A Retrospective Audit. *ANZ J. Surg*. 2008; **78** (Suppl. 1) A120 (RS12P). Article first published online: 15 APR 2008. DOI: 10.1111/j.1445-2197.2008.04511.x

Gillespie C, **Gan P**, and Fischer S. Laparoscopic Assisted Colorectal Surgery In A Regional General Surgical Unit – A Retrospective Audit. *ANZ J. Surg.* 2008; **78** (Suppl. 1) A118 (RS05). Article first published online: 15 APR 2008.

DOI: 10.1111/j.1445-2197.2008.04511.x

**To our knowledge this is the first series of laparoscopic colectomies performed by a regional general surgical unit in Australia.**

## Research

2010-current                      Leadership of the LiVac™ Liver Retractor and LiVac Sling™ R&D programs. This has involved working closely with Industry across Medical Device manufacturing, Intellectual Property, Regulatory and Distribution sectors, as well as engaging with international Key Opinion Leader surgeons. (See below – Innovation).

2013                                      Principal Investigator in ‘**An Open-Label Study of the Performance and Safety of the LiVac Retractor System in laparoscopic surgery**’. This was the first in human trial of the LiVac Retractor, performed as an open label, single surgeon, dual centre study of ten patient undergoing laparoscopic reduced or single port cholecystectomy, fundoplication or gastric banding.

**Grants:**                                      This trial was supported by an Australian Federal Government grant of AUD\$250,000 (Commercialisation Australia).

The results of the trial were published in *Surgical Endoscopy*: ‘A clinical study of the LiVac laparoscopic liver retractor system’ as noted in Publications.

<https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?ACTRN=12613000704796>

2012                                      Principal Investigator in ‘**Evaluation of Reliability and Durability of LIVAC retractor system for pre-clinical use.**’ University of Melbourne Veterinary School. Ethics ID: 1212369.1. The results of the trial were published in *Surgical Endoscopy*: ‘A novel liver retractor for reduced or single-port laparoscopic Surgery’, as documented in ‘Publications’.

Further unpublished investigations were conducted through the University of Melbourne Veterinary School in 2012-2013.

2011 Associate Researcher for the ‘**Establishment of a pilot bariatric surgery clinical quality registry**’ through the School of Public Health and Preventive Medicine, Monash University. Dr Gan was one of only 6 Associate Researchers and 6 Primary Researchers nation-wide in this landmark study, which led to the formation of the **Bariatric Surgery Registry (BSR)**. He was also the only researcher from a regional centre in Australia.

1995 *Voluntary full time laboratory - based research (4 months)*

University of Melbourne Department of Surgery,  
Repatriation Campus  
Austin and Repatriation Medical Centre  
Research Supervisor: Dr Valda Groves, PhD

### **Scientific Presentations:**

**Debate: Mini Gastric Bypass vs Roux en Y Gastric Bypass.** (Invited by Congress President to debate against Dr Ramen Goel). Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Bariatric & Metabolic Surgery Session. Chiang Mai, Thailand.

**‘The Journey of Novel Device Innovation’.** Invited Speaker at the Lunchtime Symposium on Surgical Innovation. Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Bariatric & Metabolic Surgery Session. Chiang Mai, Thailand.

**‘The “Mini Mini” Gastric Bypass: MIS strategies enhancing recovery and cosmesis’.** 21-23 November, 2019. Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Bariatric & Metabolic Surgery Session. Chiang Mai, Thailand.

**‘Application of the LiVac Retractor in Abdominal Surgery’.** Upper GI session, 5<sup>th</sup> Asian Congress of Robotic and Laparoscopic Surgery (ACRLS 2019). 14-15 November 2019, Singapore.

**‘Thinking about Commercialisation – The Academic Drum Panel Session’.**

Invited DRUM panel member, RACS Section of Academic Surgery Annual Conference 2019, 7 November, 2019. Melbourne, Australia.

**Invited Guest Speaker to the Masters of Minimally Invasive Surgery (MMIS) degree course, University of Adelaide.** Olympus Live venue, Melbourne, Australia. Presentations delivered on: 20 Sept. 2017, 12 Sept. 2018, 28 Aug. 2019.

**‘Vacuum Retraction of the Spleen – Initial Series’** 10-11 May, 2019. International Minimally Invasive Surgery Conference (i-MISC) 2019. Hong Kong. Winner of the USD\$1500 ‘Best Video’ prize.

**‘Embarking into Scar-less Surgery’. Opening address to the Scar-less Surgery pre-congress workshop - by invitation of the Faculty.** 15 November, 2018. 14<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Kuala Lumpur, Malaysia.

**‘SILS right hemicolectomy’ Pre-congress workshop on Scar-less Surgery - by invitation of the Faculty.** 15 November, 2018. 14<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Kuala Lumpur, Malaysia.

**‘Hybrid Trans-vaginal NOTES colectomies: Scarless, near-painless, attainable.’** Video presentation v233. 16-17 November, 2018. 14<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Kuala Lumpur, Malaysia.

**‘Hybrid Trans-Vaginal NOTES MIS Colectomies – a Single Surgeon Series’.** Hybrid Surgery Plenary Session. 17 November, 2017. 13<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Cebu, Philippines.

**‘So you have an idea? A Surgeon’s Journey into Medical Device Innovation’.** Advances Plenary Session. 17 November, 2017. 13<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Cebu, Philippines.

**‘Innovative MIS organ retraction with LiVac™ technologies’.** Innovations Free Paper Session. 18<sup>th</sup> November, 2017. 13<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Cebu, Philippines.

**Invited Guest Speaker to the Masters of Minimally Invasive Surgery (MA degree) course (University of Adelaide)** 20 September 2017 and 12 September 2018, Olympus LIVE Melbourne, Australia.

**‘LiVac – Changing the Game’.** (Invited speaker). University of Melbourne Research Day, 9 November 2016. Royal Melbourne Hospital, Melbourne Australia.

**‘Vacuum Stabilisation of the Spleen in Laparoscopic Splenectomy’.** Oral & video presentation at MIS week, Society of Laparoendoscopic Surgeons (SLS). Boston, USA. Presentation 288GS. 2 September 2016. Abstract available online at <http://sls.org/wp-content/uploads/2016/08/Abstracts.pdf>

**‘LiVac – Liver Vacuum Retraction’.** (Invited) First presenter at the *inaugural* Innovation Forum Session of the Emerging Technology and Procedures Committee of the ASMBS. ASMBS Obesity Weekend Conference. Las Vegas, USA. 23 June 2016.

**‘Every Bariatric Procedure Is Reduced (Or Single) Port With The Livac Retractor’.** Oral & video presentation at the IFSO 2015 Conference. Vienna, Austria. 26-29 August, 2015. Abstract published in: OBESITY SURG (2015) 25 (Suppl 1):S1–S36. DOI 10.1007/s11695-015-1750-3

**‘LiVac – A Revolution in Liver Retraction’.** Oral & video presentation at the 2<sup>nd</sup> International Consensus Conference on Laparoscopic Liver Resection. Iwate, Japan. 4-7 October 2014

**‘Results of the First-In-Human Trial of the LiVac Laparoscopic Liver Retraction System’.** Oral & video presentation at the 14<sup>th</sup> World Congress of Endoscopic Surgery. Paris, France, 25-28 June 2014.

**‘A novel liver retractor for reduced and single port laparoscopic bariatric surgery’.** Oral & video presentation at the OSSANZ 25<sup>th</sup> Annual Scientific Congress, Sanctuary Cove, Queensland, Australia. 2 – 4 October, 2013.

### **Industry Presentations**

**Advanced MIS Approaches.** Teleflex Industry presentation. 07 May, 2019. Royal Australasian College of Surgeons 87<sup>th</sup> Annual Scientific Congress, Bangkok Thailand.

**‘Reduced Port Surgery’** Invited Guest Speaker – Teleflex Industry presentation. 09 May, 2018. Royal Australasian College of Surgeons 87<sup>th</sup> Annual Scientific Congress, Sydney, NSW, Australia.

**‘MIS – Sans Trauma’** Invited Guest Speaker – Teleflex Industry presentation. 17 November, 2017. 13<sup>th</sup> Asia-Pacific Congress of Endoscopic and Laparoscopic Surgery (ELSA). Cebu, Philippines.

**‘Enhancing Recovery through Percutaneous Surgery’.** Invited Guest Speaker – Teleflex Industry Dinner. 8 May, 2017. Adelaide, Australia

**‘Mini-laparoscopy’.** Invited Guest Speaker to the Karl Storz National Sales Meeting, Hunter Valley NSW, 2 February 2016.

### **Continuing Medical Education**

Royal Australasian College of Surgeons Continuing Professional Development – certificate available upon request.

Meetings and Courses attended - available upon request.

## **Innovation**

Dr Gan is the inventor of the LiVac™ Retractor and LiVac Sling™, and author of three patent applications, one of which has already been granted in six territories, and the second granted in Australia. He is the Founding Director of the award-winning Livac Pty Ltd. Dr Gan has been actively involved in each area, from IP strategy, animal and clinical research, engineering and commercialisation, working through a team of professionals. He conducted animal trials through the University of Melbourne Veterinary School in 2012 and 2013.

A competitive Federal Australian Government (Commercialisation Australia) Grant was awarded in 2013 to assist with this development and support a First-in-Human Trial, which concluded on time and on budget at the end of 2013. This trial proved the effectiveness and safety of the LiVac Retractor System, which was registered on the Australian Register of Therapeutic Goods (ARTG) and CE Marked in 2014. It was cleared by the FDA in 2016. The LiVac™ Retractor is in clinical use internationally and supported by multiple independent peer-reviewed scientific publications.

Further product development has led to a subsequent provisional Patent Applications for a laparoscopic connector, and another MIS retractor, the LiVac Sling™, which was registered on the ARTG, with CE Mark, in 2017. The LiVac Sling™ has undergone pre-market independent clinical evaluation in Europe by a leading surgeon.

Dr Gan has published and presented on MIS surgical techniques in laparoscopic splenectomy and hybrid trans-vaginal NOTES colectomies / cholecystectomy.

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