

## SPL creates slow release soluble DEP<sup>®</sup> remdesivir nanoparticle

- DEP<sup>®</sup> remdesivir has been created to expand the potential application of remdesivir, by creating a long-acting version which could be administered subcutaneously rather than by intravenous infusion in hospital
- DEP<sup>®</sup> remdesivir is a highly water-soluble nanoparticle formulation of the antiviral drug remdesivir (Veklury, Gilead) with improved pharmacokinetics
- Gilead's antiviral drug, remdesivir, is being utilised for the treatment of COVID-19

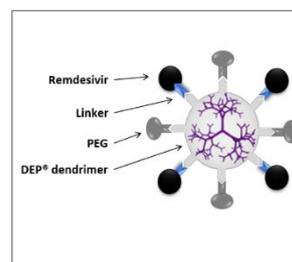
**Melbourne, Australia; 1 September 2020:** Starpharma (ASX: SPL, OTCQX: SPHRY) today announced it has applied its novel DEP<sup>®</sup> drug delivery technology to create a long-acting, water soluble version of remdesivir. Remdesivir is an antiviral drug, currently being developed by Gilead to treat COVID-19 and has emergency use authorisation from the US Food and Drug Administration for the treatment of COVID-19 in adults and children hospitalised with severe disease.

Remdesivir has broad-spectrum antiviral activity. Current formulations of remdesivir are required to be administered intravenously due to the drug's low solubility, with each infusion taking up to two hours and requiring daily administration for either 5 or 10 days.

In contrast, Starpharma's DEP<sup>®</sup> remdesivir is a highly water-soluble nanoparticle formulation of remdesivir with controlled release properties, which would potentially allow for less frequent dosing and use in a non-hospital setting, such as aged-care. The solubility of DEP<sup>®</sup> remdesivir is 100-fold higher than standard remdesivir. The benefit of DEP<sup>®</sup> remdesivir's enhanced aqueous solubility is that it would enable subcutaneous injection rather than intravenous infusion, allowing for outpatient treatment and reducing the burden on hospitals.



DEP<sup>®</sup> remdesivir has >100-fold higher solubility than remdesivir



DEP<sup>®</sup> remdesivir is a water-soluble biocompatible nanoparticle incorporating remdesivir and PEG, providing a controlled release of remdesivir (longer half-life)

Dr Jackie Fairley, Starpharma CEO, commented: "Given the limited treatment options available for COVID-19 patients, Starpharma has been actively reviewing development programs globally, and evaluating where Starpharma's proprietary DEP<sup>®</sup> technology has potential to improve delivery, expand use or reduce frequency of dosing".

"The ability to deliver remdesivir via a long-acting, subcutaneous injection has the potential to expand its application outside hospitals, into settings like aged care, and also facilitate its use in countries with less developed healthcare systems. It would also improve patient convenience and reduce the burden on the healthcare system. We're pleased to be able to utilise the DEP<sup>®</sup> platform to improve the delivery of this important antiviral medicine".

“The development of DEP<sup>®</sup> remdesivir is Starpharma’s 2<sup>nd</sup> program addressing COVID-19, and potentially future pandemics. This is separate to the development of its SPL7013 antiviral nasal spray for COVID-19, which was detailed in a [market update](#) last week”, added Dr Fairley.

### About DEP<sup>®</sup>

Starpharma’s novel dendrimer-based DEP<sup>®</sup> platform has broad commercial applicability in drug delivery by enhancing the therapeutic utility of drugs through improved solubility, efficacy and pharmacokinetics, reductions in certain toxicities (e.g. bone marrow toxicity) and creating a unique intellectual property position. The novel DEP<sup>®</sup> platform has shown reproducible advantages across a wide range of drug classes and can be utilised with both small molecule drugs, peptides and proteins. The DEP<sup>®</sup> technology provides the opportunity to create new intellectual property when used in conjunction with an existing drug.

For more information on Starpharma’s proprietary DEP<sup>®</sup> drug delivery technology visit [www.starpharma.com/drug\\_delivery](http://www.starpharma.com/drug_delivery).

Starpharma has a range of clinical-stage and preclinical stage DEP<sup>®</sup> products being developed internally and also with partners. Starpharma has three DEP<sup>®</sup> products, DEP<sup>®</sup> docetaxel, DEP<sup>®</sup> cabazitaxel and DEP<sup>®</sup> irinotecan, which are in phase 2 trials, and further DEP<sup>®</sup> assets are progressing through the preclinical development pipeline. Starpharma’s partnered DEP<sup>®</sup> programs include a multiproduct DEP<sup>®</sup> licence with AstraZeneca, which includes the development of AZD0466, a Bcl2/xL inhibitor that is currently in a phase 1 trial in the US. Starpharma also has a research partnership with leading Chinese Pharmaceutical company, Chase Sun, and other undisclosed partnerships, including Targeted DEP<sup>®</sup> partnerships with world leading ADC companies.

For more information visit [www.starpharma.com](http://www.starpharma.com).

---

### About Starpharma

Starpharma Holdings Limited (ASX: SPL, OTCQX:SPHRY), located in Melbourne Australia, is an ASX 300 company and is a world leader in the development of dendrimer products for pharmaceutical, life science and other applications.

Starpharma’s underlying technology is built around dendrimers – a type of synthetic nanoscale polymer that is highly regular in size and structure and well suited to pharmaceutical and medical uses. Starpharma has two core development programs: VivaGel<sup>®</sup> portfolio and DEP<sup>®</sup> drug delivery with the Company developing several products internally and others via commercial partnerships.

**VivaGel<sup>®</sup>:** Starpharma’s women’s health product - VivaGel<sup>®</sup> BV is based on SPL7013, astodimer sodium, a proprietary dendrimer. VivaGel<sup>®</sup> BV for bacterial vaginosis (BV), is available for sale under the brand names Betafem<sup>®</sup> BV Gel (UK), Betadine BV<sup>™</sup> (Europe), Betadine<sup>™</sup> BV Gel (Asia) and Fleurstat BVgel (Australia and New Zealand) and a new drug application has been submitted to the US FDA. Starpharma has licensed the sales and marketing of VivaGel<sup>®</sup> BV to ITF Pharma for the US; Mundipharma for Europe, Russia, CIS, Asia, the Middle East, Africa and Latin America; and to Aspen Pharmacare for Australia and New Zealand. Starpharma also has licence agreements to market the VivaGel<sup>®</sup> condom (an antiviral condom which includes VivaGel<sup>®</sup> in the lubricant) in several regions, including Australia, Europe, Canada, China and Japan (Okamoto). The VivaGel<sup>®</sup> condom has been launched in Japan under Okamoto’s 003 brand, and in Australia and Canada under the LifeStyles Dual Protect<sup>®</sup> brand. The VivaGel<sup>®</sup> condom is approved in Europe.

**DEP<sup>®</sup> - Dendrimer Enhanced Product<sup>®</sup>:** Starpharma’s DEP<sup>®</sup> drug delivery platform has demonstrated reproducible preclinical benefits across multiple internal and partnered DEP<sup>®</sup> programs, including improved efficacy, safety and survival. Starpharma has three internal DEP<sup>®</sup> products – DEP<sup>®</sup> docetaxel, DEP<sup>®</sup> cabazitaxel and DEP<sup>®</sup> irinotecan - in clinical development in patients with solid tumours. Starpharma’s partnered DEP<sup>®</sup> programs include a multiproduct DEP<sup>®</sup> licence with AstraZeneca, which involves the development and commercialisation of two novel oncology compounds, with potential to add more. In June 2019 Starpharma signed a Development and Option agreement with AstraZeneca for a DEP<sup>®</sup> version of one of AstraZeneca’s major marketed oncology medicines.

[Starpharma.com](http://Starpharma.com) | [Twitter](#) | [LinkedIn](#)

---

### Media:

**WE Communications**  
Rebecca Wilson  
Mob: +61 417 382 391  
[rwilson@we-worldwide.com](mailto:rwilson@we-worldwide.com)  
Arthur Chan  
+61 2 9237 2805  
[arthurc@we-worldwide.com](mailto:arthurc@we-worldwide.com)

### Starpharma Holdings Limited

Dr Jackie Fairley, Chief Executive Officer  
Nigel Baade, CFO and Company Secretary  
+61 3 8532 2704  
[investor.relations@starpharma.com](mailto:investor.relations@starpharma.com)  
4-6 Southampton Crescent  
Abbotsford Vic 3067

Tony Eglezos  
VP Business Development  
+61 3 8532 2704  
[busdev@starpharma.com](mailto:busdev@starpharma.com)  
(Partnering)

### Disclosure

This ASX Announcement was authorised for release by the Chairman, Mr Rob Thomas.



### Forward Looking Statements

This document contains certain forward-looking statements, relating to Starpharma's business, which can be identified by the use of forward-looking terminology such as "promising", "plans", "anticipated", "will", "project", "believe", "forecast", "expected", "estimated", "targeting", "aiming", "set to", "potential", "seeking to", "goal", "could provide", "intends", "is being developed", "could be", "on track", or similar expressions, or by express or implied discussions regarding potential filings or marketing approvals, or potential future sales of product candidates. Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from any future results, performance or achievements expressed or implied by such statements. There can be no assurance that any existing or future regulatory filings will satisfy the FDA's and other authorities' requirements regarding any one or more product candidates nor can there be any assurance that such product candidates will be approved by any authorities for sale in any market or that they will reach any particular level of sales. In particular, management's expectations regarding the approval and commercialization of the product candidates could be affected by, among other things, unexpected trial results, including additional analysis of existing data, and new data; unexpected regulatory actions or delays, or government regulation generally; our ability to obtain or maintain patent or other proprietary intellectual property protection; competition in general; government, industry, and general public pricing pressures; and additional factors that involve significant risks and uncertainties about our products, product candidates, financial results and business prospects. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described herein as anticipated, believed, estimated or expected. Starpharma is providing this information as of the date of this document and does not assume any obligation to update any forward-looking statements contained in this document as a result of new information, future events or developments or otherwise.