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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Sulfonated monophosphorylated mannose oligosaccharide for the treatment of hepatocellular carcinoma

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Disclaimer Please note that revisions to the Public Summary of Opinion are purely administrative updates. Therefore, the scientific content of the document reflects the outcome of the Committee for Orphan Medicinal Products (COMP) at the time of designation and is not updated after first publication.	

On 21 June 2011, orphan designation (EU/3/11/872) was granted by the European Commission to S-cubed Limited, United Kingdom, for sulfonated monophosphorylated mannose oligosaccharide for the treatment of hepatocellular carcinoma.

What is hepatocellular carcinoma?

Hepatocellular carcinoma is a primary cancer of the liver (a cancer that starts in the liver, rather than a cancer that has spread to the liver from another location in the body). It is more common in men than in women, and occurs mostly in people who have scarring of the liver (cirrhosis) or following infection with the hepatitis B or C viruses. Symptoms of the disease include pain and swelling in the abdomen, weight loss, weakness, loss of appetite and nausea (feeling sick).

Hepatocellular carcinoma is a severe and life-threatening disease that is associated with shortened life expectancy.

What is the estimated number of patients affected by the condition?

At the time of designation, hepatocellular carcinoma affected approximately 2 in 10,000 people in the European Union (EU). This is equivalent to a total of around 102,000 people*, and is below the ceiling for orphan designation, which is 5 people in 10,000. This is based on the information provided by the sponsor and the knowledge of the Committee for Orphan Medicinal Products (COMP).

*Disclaimer: For the purpose of the designation, the number of patients affected by the condition is estimated and assessed on the basis of data from the European Union (EU 27), Norway, Iceland and Liechtenstein. At the time of designation, this represented a population of 507,700,000 (Eurostat 2011).



What treatments are available?

At the time of designation, several medicines were authorised in the EU for the treatment of hepatocellular carcinoma. The choice of treatment depended mainly on how advanced the disease was. The only therapies to cure the cancer were surgery to remove the tumour and liver transplantation, but these could only be carried out in very few patients. Other treatments included chemotherapy (medicines to treat cancer) and immunotherapy (medicines that stimulate the immune system to kill the cancer cells). Radiofrequency ablation (using a probe placed into the tumour to heat and destroy cancer cells) and ethanol injection were also used to remove small tumours.

The sponsor has provided sufficient information to show that sulfonated monophosphorylated mannose oligosaccharide might be of significant benefit for patients with hepatocellular carcinoma because this medicine works in a different way to existing treatments and early studies show that it might improve the treatment of patients with this condition. This assumption will need to be confirmed at the time of marketing authorisation, in order to maintain the orphan status.

How is this medicine expected to work?

Sulfonated monophosphorylated mannose oligosaccharide is expected to work by blocking an enzyme called heparanase, which is present in large amounts in cancer cells, including hepatocellular carcinoma cells. Heparanase helps the cancer cells to grow and invade surrounding tissues through its involvement in breaking down cell membranes and in activating 'growth factors' that help form blood vessels. By blocking the enzyme, this medicine is expected to help slow the growth of the cancer and prevent it from spreading.

What is the stage of development of this medicine?

The effects of this medicine have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with this medicine in patients with hepatocellular carcinoma were ongoing.

At the time of submission, sulfonated monophosphorylated mannose oligosaccharide was not authorised anywhere in the EU for hepatocellular carcinoma or designated as an orphan medicinal product elsewhere for this condition.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 9 March 2011 recommending the granting of this designation.

Opinions on orphan medicinal product designations are based on the following three criteria:

- the seriousness of the condition;
- the existence of alternative methods of diagnosis, prevention or treatment;
- either the rarity of the condition (affecting not more than 5 in 10,000 people in the EU) or insufficient returns on investment.

Designated orphan medicinal products are products that are still under investigation and are considered for orphan designation on the basis of potential activity. An orphan designation is not a marketing authorisation. As a consequence, demonstration of quality, safety and efficacy is necessary before a product can be granted a marketing authorisation.

For more information

Sponsor's contact details:

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For contact details of patients' organisations whose activities are targeted at rare diseases see:

- [Orphanet](#), a database containing information on rare diseases which includes a directory of patients' organisations registered in Europe.
- [European Organisation for Rare Diseases \(EURORDIS\)](#), a non-governmental alliance of patient organisations and individuals active in the field of rare diseases.

Translations of the active ingredient and indication in all official EU languages¹, Norwegian and Icelandic

Language	Active ingredient	Indication
English	Sulfonated monophosphorylated mannose oligosaccharide	Treatment of hepatocellular carcinoma
Bulgarian	Сулфониран олигозахарид на монофосфорилирана маноза	Лечение на хепатоцелуларен карцином
Czech	Sulfonovaný monofosforylovaný oligosacharid manózy	Léčba hepatocelulárního karcinomu
Danish	Sulfooneret monofosforyleret mannose oligosaccharid	Behandling af hepatocellulært carcinoma
Dutch	Gesulfoneerd monogefosforyleerd mannose oligosaccharide	Behandeling van hepatocellulair carcinoom
Estonian	Sulfoonmonofosforülaat-mannoos-oligosahhariid	Hepatotsellulaarse kartsinoomi ravi
Finnish	Sulfonoitu monofosforyloitu mannoosi-oligosakkaridi	Hepatosellulaarisen karsinooman hoito
French	Oligosaccharide de mannose monophosphorylé sulfaté	Traitement du carcinome hépatocellulaire
German	Sulfoniertes monophosphoryliertes Mannose-Oligosaccharid	Behandlung des Leberzellkarzinoms
Greek	Ολιγοσακχαρίτης θειωμένης μονοφωσφορυλιωμένης μαννόζης	Θεραπεία του ηπατοκυτταρικού καρκινώματος
Hungarian	Szulfonált, monofoszforilált mannóz oligoszaccharid	Hepatocelluláris carcinoma kezelése
Italian	Oligosaccaride di mannosio sulfonato monofosforilato	Trattamento del carcinoma epatocellulare
Latvian	Sulfonētas monofosforilētas mannozes oligosaharīds	Hepatocellulāras karcinomas ārstēšana
Lithuanian	Sulfonintas monofosforilintas manozės oligosacharidas	Hepatoceliulinės karcinomos gydymas
Maltese	Sulfonated monophosphorylated mannose oligosaccharide	Kura tal-karċinoma epatoċellulari
Polish	Sulfonowany monofosforylowany oligosacharyd mannozy	Leczenie raka wątrobowokomórkowego
Portuguese	Oligossacarídeos de manose monofosforilados e sulfonados	Tratamento do carcinoma hepatocelular
Romanian	Oligozaharide monofosforilate și sulfonate de manoză	Tratamentul carcinomului hepatocelular
Slovak	Sulfónovaný monofosforylovaný oligosacharid manózy	Liečba hepatocelulárneho karcinómu
Slovenian	Oligosaharid sulfonirane monofosforilirane manoze	Zdravljenje hepatocelularnega karcinoma
Spanish	Oligosacárido monofosforilado sulfonatado de manosa	Tratamiento del carcinoma hepatocelular

¹ At the time of designation

Language	Active ingredient	Indication
Swedish	Sulfonylerad monofosforylerad mannos oligosackarid	Behandling av hepatocellulärt karcinom
Norwegian	Sulfonert monofosforylert mannose oligosakkarid	Behandling av hepatocellulært karsinom
Icelandic	Súlfónerað einfosfórýlerað mannósaóligósakkaríð	Meðferð við lifrarfrumukrabbameini