

Summary of Product Characteristics (SmPC)

The summary of product characteristics (SmPC) of Brand name: Varizost Vaccine Generic name: varicella vaccine (live, attenuated) BP is given below:

1. Name of the medicinal product

Varizost lyophilized preparation of varicella vaccine (live, attenuated) BP
Varicella vaccine (live, attenuated)

2. Qualitative and quantitative composition

After reconstitution, one dose (0.5 mL) contains:

Varicella virus Oka strain (live, attenuated) not less than $10^{3.3}$ PFU produced in human diploid cells (MRC-5) plaque-forming units.

Excipients:

The vaccine contains (Sodium glutamate, Ureophil, Arginine, Glucose, Sucrose, Trehalose, Human Albumin, Sterile Water for Injection)

For the full list of excipients, see section 6.1.

3. Pharmaceutical form

Lyophilized preparation for subcutaneous use in vial.

Varizost is a lyophilized preparation (with appropriate stabilizer) of the live, attenuated varicella-zoster virus (Oka strain) obtained by propagated ion of the virus in human diploid (MRC-5) cell culture. After reconstitution, the solution should be homogenous, clear solution and free from any foreign particulate matter.

4. Clinical particulars

4.1 Therapeutic indications

Varizost is indicated for active immunisation against varicella:

- In healthy individuals from 9 to 11 months of age (see section 5.1), under special circumstances;
- In healthy individuals from the age of 12 months (see section 5.1);
- For post-exposure prophylaxis if administered to healthy, susceptible individuals exposed to varicella within 72 hours of contact (see sections 4.4 and 5.1);
- In individuals at high risk of severe varicella (see sections 4.3, 4.4 and 5.1).

The use of Varizost should be based on official recommendations.

4.2 Posology and method of administration

Posology

The immunisation schedules for Varizost should be based on official recommendations.

Healthy individuals

Infants from 9 months to 11 months of age (inclusive)

Infants from 9 to 11 months of age (inclusive) receive two doses of Varizost to ensure optimal protection against varicella (see section 5.1). The second dose should be given after a minimum interval of 3 months.

Children from 12 months of age, adolescents and adults

Children from the age of 12 months as well as adolescents and adults receive two doses of Varizost to ensure optimal protection against varicella (see section 5.1). The second dose should

generally be given at least 6 weeks after the first dose. Under no circumstances should the interval between the doses be less than 4 weeks.

Individuals at high risk of severe varicella

Individuals at high risk of severe varicella may benefit from re-vaccination following the 2-dose schedule (see section 5.1). Periodic measurement of varicella antibodies after immunisation may be indicated in order to identify those who may benefit from re-immunisation. Under no circumstances should the interval between the doses be less than 4 weeks.

Other paediatric population

The safety and efficacy of Varizost in infants less than 9 months of age have not yet been established. No data are available.

Interchangeability

- A single dose of Varizost may be administered to those who have already received a single dose of another varicella-containing vaccine.
- A single dose of Varizost may be administered followed by a single dose of another varicella-containing vaccine.

Method of administration

Varizost is to be injected subcutaneously (SC) or intramuscularly (IM) in the deltoid region or in the anterolateral area of the thigh.

Varizost should be administered subcutaneously in individuals with bleeding disorders (e.g. thrombocytopenia or any coagulation disorder).

For instructions on reconstitution of the medicinal product before administration, see section 6.6.

4.3 Contraindications

Varizost is contraindicated in individuals with severe humoral or cellular (primary or acquired) immunodeficiency such as (see also section 4.4.):

- subjects with immunodeficiency states with a total lymphocyte count less than 1,200 per mm³;
- subjects presenting other evidence of lack of cellular immune competence (e.g. patients with leukaemias, lymphomas, blood dyscrasias, clinically manifest HIV infection);
- subjects receiving immunosuppressive therapy including high dose of corticosteroids;
- severe combined immunodeficiency;
- agammaglobulinemia;
- AIDS or symptomatic HIV infection or an age-specific CD4⁺ T-lymphocyte percentage in children below 12 months: CD4⁺ <25%; children between 12-35 months: CD4⁺ < 20%; children between 36-59 months: CD4⁺ < 15%.

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1 or to neomycin. However, a history of contact dermatitis to neomycin is not a contraindication.

Varizost is contraindicated in subjects having shown signs of hypersensitivity after previous administration of varicella vaccine.

Pregnancy. Furthermore, pregnancy should be avoided for 1 month following vaccination (see section 4.6).

4.4 Special warnings and precautions for use

Traceability

In order to improve the traceability of biological medicinal products, the name and the batch number of the administered product should be clearly recorded.

As with other vaccines, the administration of Varizost should be postponed in subjects suffering from acute severe febrile illness. However, the presence of a minor infection, such as a cold, should not result in the deferral of vaccination.

Syncope (fainting) can occur following, or even before, any vaccination especially in adolescents as a psychogenic response to the needle injection. This can be accompanied by several neurological signs such as transient visual disturbance, paraesthesia and tonic-clonic limb movements during recovery. It is important that procedures are in place to avoid injury from faints.

As with all injectable vaccines, appropriate medical treatment and supervision should always be readily available in case of a rare anaphylactic reaction following the administration of the vaccine.

Alcohol and other disinfecting agents must be allowed to evaporate from the skin before injection of the vaccine since they can inactivate the attenuated viruses in the vaccine.

Limited protection against varicella may be obtained by vaccination up to 72 hours after exposure to natural disease (see section 5.1).

As with any vaccine, a protective immune response may not be elicited in all vaccinees.

As for other varicella vaccines, cases of varicella disease have been shown to occur in persons who have previously received Varizost. These breakthrough cases are usually mild, with a fewer number of lesions and less fever as compared to cases in unvaccinated individuals.

Transmission

Transmission of the Oka varicella vaccine virus has been shown to occur at a very low rate in seronegative contacts of vaccinees with rash. Transmission of the Oka varicella vaccine virus from a vaccinee who does not develop a rash to seronegative contacts cannot be excluded.

Compared to healthy vaccinees, leukaemia patients are more likely to develop a papulovesicular rash (see also section 4.8). In these cases too, the course of the disease in the contacts was mild.

Vaccine recipients, even those who do not develop a varicella-like rash, should attempt to avoid contact, whenever possible, with high-risk individuals susceptible to varicella for up to 6 weeks following vaccination. In circumstances where contact with high-risk individuals susceptible to varicella is unavoidable, the potential risk of transmission of the varicella vaccine virus should be weighed against the risk of acquiring and transmitting wild-type varicella virus.

High-risk individuals susceptible to varicella include:

- Immunocompromised individuals (see sections 4.3 and 4.4);
- Pregnant women without documented positive history of varicella (chickenpox) or laboratory evidence of prior infection;
- Newborns of mothers without documented positive history of chickenpox or laboratory evidence of prior infection.

The mild nature of the rash in the healthy contacts indicates that the virus remains attenuated after passage through human hosts.

Individuals at high risk of severe varicella

There is only limited data from clinical trials available for Varizost (+4°C formulation) in individuals at high risk of severe varicella.

Vaccination may be considered in patients with selected immune deficiencies where the benefits outweigh the risks (e.g. asymptomatic HIV subjects, IgG subclass deficiencies, congenital neutropenia, chronic granulomatous disease, and complement deficiency diseases).

Immunocompromised patients who have no contraindication for this vaccination (see section 4.3) may not respond as well as immunocompetent subjects, therefore some of these patients may acquire varicella in case of contact, despite appropriate vaccine administration. These patients should be monitored carefully for signs of varicella.

Should vaccination be considered in individuals at high risk of severe varicella, it is advised that:

- maintenance chemotherapy should be withheld one week before and one week after immunisation of patients in the acute phase of leukaemia. Patients under radiotherapy should normally not be vaccinated during the treatment phase. Generally, patients are immunised when they are in complete haematological remission from their disease.
- the total lymphocyte count should be at least 1,200 per mm³ or no other evidence of lack of cellular immune competence exists.
- vaccination should be carried out a few weeks before the administration of the immunosuppressive treatment for patients undergoing organ transplantation (e.g. kidney transplant).

Very few reports exist on disseminated varicella with internal organ involvement following vaccination with Oka varicella vaccine strain mainly in immunocompromised subjects.

Varizost must not be administered intravascularly or intradermally

Phenylalanine content

The vaccine contains 331 micrograms of phenylalanine per dose. Phenylalanine may be harmful for individuals with phenylketonuria (PKU).

4.5 Interaction with other medicinal products and other forms of interaction

If tuberculin testing has to be done it should be carried out before or simultaneously with vaccination since it has been reported that live viral vaccines may cause a temporary depression of tuberculin skin sensitivity. As this anergy may last up to a maximum of 6 weeks, tuberculin testing should not be performed within that period after vaccination to avoid false negative results.

In individuals who have received immunoglobulins or a blood transfusion, vaccination should be delayed for at least three months because of the likelihood of vaccine failure due to passively acquired varicella antibodies.

Salicylates should be avoided for 6 weeks after varicella vaccination as Reye's Syndrome has been reported following the use of salicylates during natural varicella infection.

Use with other vaccines

Healthy individuals

Clinical studies with varicella-containing vaccines support concomitant administration of Varizost with any of the following monovalent or combination vaccines: measles-mumps-rubella vaccine (MMR), diphtheria-tetanus-acellular pertussis vaccine (DTPa), reduced antigen diphtheria-tetanus-acellular pertussis vaccine (dTpa), *Haemophilus influenzae* type b vaccine (Hib), inactivated polio vaccine (IPV), hepatitis B vaccine (HBV), hexavalent vaccine (DTPa-HBV-IPV/Hib), hepatitis A vaccine (HAV), meningococcal serogroup B vaccine (Bexsero), meningococcal serogroup C conjugate vaccine (MenC), meningococcal serogroups A, C, W and Y conjugate vaccine (MenACWY) and pneumococcal conjugate vaccine (PCV).

Different injectable vaccines should always be administered at different injection sites.

If a measles vaccine is not given at the same time as Varizost, there should be an interval of at least one month between the administration of these vaccines as the measles vaccine may lead to short-term suppression of the cellular immune response.

Individuals at high risk of severe varicella

Varizost should not be administered at the same time as other live attenuated vaccines.

Inactivated vaccines may be administered in any temporal relationship to Varizost, given that no specific contraindication has been established. However, different injectable vaccines should always be administered at different injection sites.

4.6 Fertility, pregnancy and lactation

Pregnancy

Pregnant women should not be vaccinated with Varizost.

However, foetal damage has not been documented when varicella vaccines have been given to pregnant women.

Women of child-bearing potential

Pregnancy should be avoided for 1 month following vaccination. Women who intend to become pregnant should be advised to delay.

Breast-feeding

There are no data regarding use in breast-feeding women.

Due to the theoretical risk of transmission of the vaccine viral strain from mother to infant, Varizost is generally not recommended for breast-feeding mothers (see also section 4.4).

Vaccination of exposed women with negative history of varicella or known to be seronegative to varicella should be assessed on an individual basis.

Fertility

No data available.

4.7 Effects on ability to drive and use machines

No studies on the effects of Varizost on the ability to drive and use machines have been performed. Varizost has no or negligible influence on the ability to drive and use machines. However, some of the effects mentioned under section 4.8 “Undesirable effects” may temporarily affect the ability to drive or use machines.

4.8 Undesirable effects

Clinical trial data

Healthy individuals

More than 7,900 individuals have participated in clinical trials evaluating the reactogenicity profile of the vaccine administered subcutaneously either alone or concomitantly with other vaccines.

The safety profile presented below is based on a total of 5,369 doses of Varizost administered alone to infants, children, adolescents and adults.

Adverse reactions reported are listed according to the following frequency:

Very common:	($\geq 1/10$)
Common:	($\geq 1/100$ to $< 1/10$)
Uncommon:	($\geq 1/1,000$ to $< 1/100$)
Rare:	($\geq 1/10,000$ to $< 1/1,000$)
Very rare:	($< 1/10,000$)

Within each frequency grouping the adverse reactions are presented in the order of decreasing seriousness.

System organ class*	Frequency	Adverse reactions
Infections and infestations	Uncommon	upper respiratory tract infection, pharyngitis
Blood and lymphatic system disorders	Uncommon	lymphadenopathy
Psychiatric disorders	Uncommon	irritability
Nervous system disorders	Uncommon	headache, somnolence
Eye disorders	Rare	conjunctivitis
Respiratory, thoracic and mediastinal disorders	Uncommon	cough, rhinitis
Gastrointestinal disorders	Uncommon	vomiting, nausea
	Rare	diarrhoea, abdominal pain
Skin and subcutaneous tissue disorders	Common	rash
	Uncommon	viral rash, pruritus
	Rare	urticaria
Musculoskeletal and connective tissue disorders	Uncommon	arthralgia, myalgia
General disorders and administration site conditions	Very common	pain, erythema
	Common	pyrexia (oral/axillary temperature $\geq 37.5^{\circ}\text{C}$ or rectal temperature $\geq 38.0^{\circ}\text{C}$) [†] , injection site swelling [†]
	Uncommon	pyrexia (oral/axillary temperature $> 39.0^{\circ}\text{C}$ or rectal temperature $> 39.5^{\circ}\text{C}$), fatigue, malaise

* According to MedDRA (Medical Dictionary for Regulatory Activities) terminology

[†] Injection site swelling and pyrexia were reported very commonly in studies conducted in adolescents and adults. Injection site swelling was also reported very commonly after the second dose in children under 13 years of age.

A trend for higher incidence of pain, erythema and injection site swelling after the second dose was observed as compared to the first dose.

No differences were seen in the reactogenicity profile between initially seropositive and initially seronegative subjects.

In a clinical trial, 328 children aged 11 to 21 months received GlaxoSmithKline (GSK)'s combined measles, mumps, rubella and varicella vaccine (containing the same varicella strain as Varizost) either by subcutaneous or intramuscular route. A comparable safety profile was observed for both administration routes.

Individuals at high risk of severe varicella

There are limited data from clinical trials available in subjects at high risk of severe varicella. However, vaccine-associated reactions (mainly papulo-vesicular eruptions and pyrexia) are usually mild. As in healthy subjects, erythema, swelling and pain at the site of injection are mild and transient.

Post-marketing data

The following additional adverse reactions have been identified in rare occasions during post-marketing surveillance. Because they are reported voluntarily from a population of unknown size, a true estimate of frequency cannot be provided.

System organ class*	Adverse reactions
Infections and infestations	herpes zoster
Blood and lymphatic system disorders	thrombocytopenia
Immune system disorders	anaphylactic reaction, hypersensitivity
Nervous system disorders	encephalitis, cerebrovascular accident, seizure, cerebellitis, cerebellitis like symptoms (including transient gait disturbance and transient ataxia)
Vascular disorders	vasculitis (including Henoch Schonlein purpura and Kawasaki syndrome)
Skin and subcutaneous tissue disorders	erythema multiforme

* According to MedDRA (Medical Dictionary for Regulatory Activities) terminology

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the Yellow Card Scheme at: www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store.

4.9 Overdose

Cases of accidental administration of more than the recommended dose of Varizost have been reported. Amongst these cases, the following adverse events were reported: lethargy and convulsions. In the other cases reported as overdose there were no associated adverse events.

5. Pharmacological properties

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Viral vaccines, Varicella zoster vaccines, ATC code J07BK01.

Mechanism of action

Varizost produces an attenuated clinically inapparent varicella infection in susceptible subjects. The presence of antibodies is accepted as evidence of protection, however, there is no established limit of protection for varicella disease.

Pharmacodynamic effects

Efficacy and effectiveness

The efficacy of GlaxoSmithKline (GSK)'s Oka varicella vaccines in preventing confirmed varicella disease (by Polymerase Chain Reaction (PCR) or exposure to varicella case) has been evaluated in a large randomised multicountry clinical trial, which included GSK's combined measles-mumps-rubella vaccine (Priorix) as active control. The trial has been conducted in Europe where no routine varicella vaccination was implemented at that time. Children aged 12-22 months received one dose of Varizost or two doses of GSK's combined measles-mumps-rubella-varicella vaccine (Priorix-Tetra) six weeks apart. Vaccine efficacy against confirmed

varicella of any severity and against moderate or severe confirmed varicella was observed after a primary follow-up period of 2 years (median duration 3.2 years). Persistent efficacy was observed in the same study during the long term follow-up periods of 6 years (median duration 6.4 years) and 10 years (median duration 9.8 years). The data are presented in the Table below.

Group	Timing	Efficacy against confirmed varicella of any severity	Efficacy against moderate or severe confirmed varicella
GSK's monovalent varicella (Oka) vaccine (Varizost) 1 dose N = 2,487	Year 2	65.4 % (97.5% CI: 57.2; 72.1)	90.7% (97.5% CI: 85.9; 93.9)
	Year 6 ⁽¹⁾	67.0% (95% CI: 61.8; 71.4)	90.3% (95% CI: 86.9; 92.8)
	Year 10 ⁽¹⁾	67.2% (95% CI: 62.3; 71.5)	89.5% (95% CI: 86.1; 92.1)
GSK's combined measles, mumps, rubella and varicella (Oka) vaccine (Priorix Tetra) 2 doses N = 2,489	Year 2	94.9% (97.5% CI: 92.4; 96.6)	99.5% (97.5% CI: 97.5; 99.9)
	Year 6 ⁽¹⁾	95.0% (95% CI: 93.6; 96.2)	99.0% (95% CI: 97.7; 99.6)
	Year 10 ⁽¹⁾	95.4% (95% CI 94.0; 96.4)	99.1% (95% CI: 97.9; 99.6)

N = number of subjects enrolled and vaccinated

(1) descriptive analysis

In clinical trials, the majority of vaccinated subjects who were subsequently exposed to wild-type virus were either completely protected from clinical chickenpox or developed a milder form of the disease (i.e. low number of vesicles, absence of fever).

Effectiveness data, deriving from observation in different contexts (epidemic onset, case-control studies, observational studies, databases, models) suggest a higher level of protection and a decrease in the occurrence of cases of chickenpox following two doses of vaccine compared to a single dose.

The impact of one dose of Varizost in reducing varicella hospitalisations and ambulatory visits among children were respectively 81% and 87% overall.

Post-Exposure Prophylaxis

Published data on the prevention of varicella following exposure to the varicella virus are limited.

In a randomised, double-blind, placebo-controlled study including 42 children aged between 12 months and 13 years, 22 children received one dose of Varizost and 20 children received one dose of placebo within 3 days after exposure. Similar percentages (41% and 45%, respectively) of children contracted varicella, but the risk of developing a moderate to severe form of the disease was 8 times higher in the placebo group compared with the vaccinated group (relative risk = 8.0; 95% CI: 1.2; 51.5; P=0.003).

In a controlled study including 33 children aged between 12 months and 12 years, 15 received varicella vaccine (13 subjects received Varizost and 2 subjects received another Oka strain varicella vaccine) up to 5 days after exposure and 18 subjects were not vaccinated. When considering the 12 children vaccinated within 3 days after exposure, vaccine effectiveness was

44% (95% CI: -1; 69) in preventing any disease and 77% (95% CI: 14; 94) in preventing moderate or severe disease.

In a prospective cohort study (with historic attack rates as control), 67 children, adolescents or adults received varicella vaccine (55 subjects received Varizost and 12 subjects received another Oka strain varicella vaccine) within 5 days after exposure. Vaccine effectiveness was 62.3% (95% CI: 47.8; 74.9) in preventing any type of disease and 79.4% (95% CI: 66.4; 88.9) in preventing moderate and severe disease.

Individuals at high risk of severe varicella

Patients suffering from leukaemia, patients under immunosuppressive treatment (including corticosteroid therapy) for malignant solid tumour, for serious chronic diseases (such as chronic renal failure, auto-immune diseases, collagen diseases, severe bronchial asthma) or following organ transplantation, are predisposed to severe natural varicella. Vaccination with the Oka-strain has been shown to reduce the complications of varicella in these patients.

Immune response after subcutaneous administration

Healthy individuals

In children aged 11 months to 21 months the seroresponse rate, when measured by ELISA 6 weeks after vaccination, was 89.6% after one vaccine dose and 100% after the second vaccine dose.

In children aged 9 months to 12 years the overall seroconversion rate, when measured by Immunofluorescence Assay (IFA) 6 weeks after vaccination, was >98% after one vaccine dose. In children aged 9 months to 6 years the seroconversion rate, when measured by IFA 6 weeks after vaccination, was 100% after a second vaccine dose. A marked increase of antibody titres was observed following the administration of a second dose (5 to 26-fold increase of geometric mean titres).

In subjects aged 13 years and above the seroconversion rate, when measured by IFA 6 weeks after vaccination, was 100% after the second vaccine dose. One year after vaccination, all subjects tested were still seropositive.

Individuals at high risk of severe varicella

Limited data from clinical trials have shown immunogenicity in subjects at high risk of severe varicella.

Immune response after intramuscular administration

The immunogenicity of Varizost administered intramuscularly is based on a comparative study where 283 healthy children aged 11 to 21 months received GSK's combined measles, mumps, rubella and varicella vaccine (containing the same varicella strain as Varizost) either by subcutaneous or intramuscular route. Comparable immunogenicity was demonstrated for both administration routes.

5.2 Pharmacokinetic properties

Evaluation of pharmacokinetic properties is not required for vaccines.

5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on general safety tests performed in animals.

6. Pharmaceutical particulars

6.1 List of excipients

Powder

Sodium glutamate

Ureophil, Arginine

Glucose, Sucrose,

Trehalose,

Human Albumin,

Sterile Water for Injection

6.2 Incompatibilities

In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

6.3 Shelf life

2 years.

After reconstitution, it is recommended that the vaccine be injected as soon as possible.

However, it has been demonstrated that the reconstituted vaccine may be kept for up to 90 minutes at room temperature (25°C) and up to 8 hours in the refrigerator (2°C to 8°C). If not used within the recommended in-use storage time frames and conditions, the reconstituted vaccine must be discarded.

6.4 Special precautions for storage

Store and transport refrigerated (2°C to 8°C).

Store in the original package in order to protect from light.

For storage conditions after reconstitution of the medicinal product, see section 6.3.

6.5 Nature and contents of container

Powder in a single-dose glass vial (type I glass) with a stopper (bromobutyl rubber).

6.6 Special precautions for disposal and other handling

The solvent and the reconstituted vaccine should be inspected visually for any foreign particulate matter and/or abnormal physical appearance before administration. In the event of either being observed, do not administer the vaccine.

7. Marketing authorisation holder

Incepta Vaccine Limited

Dewan Idris Road, Bara Rangamatia, Zirabo, Savar Dhaka, Bangladesh.

8. Marketing authorisation number(s)

363-27-069

9. Date of first authorisation/renewal of the authorisation

Date of first authorisation: 25 Feb 2018

Date of last renewal: N/A

10. Date of revision of the text

20 February 2023