

## AUSTRALIAN PRODUCT INFORMATION

### **Rh(D) Immunoglobulin-VF** **(Human anti-D Rh<sub>0</sub> immunoglobulin)**

#### **1 NAME OF THE MEDICINE**

Human Anti-D Rh<sub>0</sub> Immunoglobulin

#### **2 QUALITATIVE AND QUANTITATIVE COMPOSITION**

Rh(D) Immunoglobulin-VF is a sterile, preservative-free solution containing human plasma proteins and 22.5 mg/mL glycine. At least 98% of the protein is immunoglobulins (mainly IgG), with an anti-D (Rh<sub>0</sub>) antibody content of 625 IU per vial/  $\geq 30$  mg/mL human plasma proteins or 250 IU per vial/  $\geq 10$  mg/mL human plasma proteins.

Rh(D) Immunoglobulin-VF is manufactured from human plasma collected by Australian Red Cross Lifeblood.

#### **3 PHARMACEUTICAL FORM**

Solution for intramuscular injection.

The solution has a pH of 6.6.

#### **4 CLINICAL PARTICULARS**

##### **4.1 THERAPEUTIC INDICATIONS**

Rh(D) Immunoglobulin-VF is indicated for the prevention of Rh sensitisation in Rh(D) negative females at or below child bearing age.

##### **4.2 DOSE AND METHOD OF ADMINISTRATION**

###### **Dosage**

*Sensitising events in pregnancy (unless the blood type of the foetus is confirmed to be Rh(D) negative)*

The recommended dose of anti-D immunoglobulin is:

- 250 IU after sensitising events in the first trimester of pregnancy and
- 625 IU after sensitising events beyond the first trimester.

If the gestational age is not known with certainty and the possibility exists that the gestational age is 13 weeks or more, 625 IU should be given.

In twin and multiple pregnancies in the first trimester, 625 IU should be given.

The dose should be given as soon as possible and within 72 hours of the event.

Sensitising events include normal delivery, miscarriage, termination of pregnancy, ectopic pregnancy, chorionic villus sampling, amniocentesis, cordocentesis, abdominal trauma considered sufficient to cause foeto-maternal haemorrhage, antepartum haemorrhage and external cephalic version.

Since evidence of the efficacy of these doses is limited, it is recommended that the magnitude of foeto-maternal haemorrhage is assessed and further doses given as necessary. As a guide, a dose of 625 IU will protect against a foeto-maternal haemorrhage of up to 6 mL of Rh(D) positive red blood cells. For haemorrhages greater than 6 mL, the recommended dose is 100 IU per mL Rh(D) positive red blood cells.

### ***Transfusion of Rh(D) positive blood***

The recommended dose of anti-D immunoglobulin is:

- 100 IU per mL Rh(D) positive red blood cells.

### **Administration**

If the product appears to be turbid by transmitted light or contains any sediment it must not be used. **The product does not contain an antimicrobial preservative. It must, therefore, be used immediately after opening the vial. Any unused solution must be discarded appropriately.**

Rh(D) Immunoglobulin-VF should be brought to room temperature before use, and given slowly by deep intramuscular injection using an appropriate sized needle. If a large dose (more than 5 mL) is required, it is advisable to administer it in divided doses at different sites. Hyaluronidase and/or a suitable local anaesthetic may be added to the injection if desired.

### **4.3 CONTRAINDICATIONS**

Rh(D) Immunoglobulin-VF should not be given to:

1. An Rh(D) positive or D<sup>u</sup> positive individual.
2. An Rh(D) negative and D<sup>u</sup> negative individual previously sensitised to the Rh(D) antigen.

**Note:** Although there is no benefit in administering Rh(D) Immunoglobulin-VF to a woman who is already sensitised to the Rh factor, there is no more risk than when it is given to a woman who is not sensitised.

3. Individuals with isolated Immunoglobulin A (IgA) deficiency, unless they have been tested and shown not to have circulating anti-IgA antibodies.
4. Individuals who have severe thrombocytopenia or any coagulation disorder that would contraindicate intramuscular injections.

#### **4.4 SPECIAL WARNINGS AND PRECAUTIONS FOR USE**

**Rh(D) Immunoglobulin-VF MUST NOT be administered intravenously** because of the potential for anaphylactic reactions. Injections must be made intramuscularly, and care should be taken to draw back on the plunger of the syringe before injection in order to be certain that the needle is not in a blood vessel.

Rh(D) Immunoglobulin-VF should be given with caution to patients with a history of prior systemic allergic reactions following the administration of human immunoglobulin preparations. In the case of shock, treatment should follow the guidelines of shock therapy.

Rh(D) Immunoglobulin-VF must not be given to the Rh(D) positive postpartum infant. Babies born of women given Rh(D) Immunoglobulin-VF antepartum may have a weakly positive Coombs' test at birth.

There is some evidence that the intramuscular administration of Rh(D) Immunoglobulin-VF in patients with a body mass index (BMI)  $\geq 30$  is associated with an increased risk of lack of effect. Therefore in these patients, it is recommended that the clearance of foetal cells and the presence of Rh(D) antibody be confirmed post administration.

#### **Pathogen safety**

This product is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses and theoretically Creutzfeldt-Jakob Disease (CJD) agents, that can cause disease. The risk that such products will transmit an infectious agent has been reduced by screening plasma donors for prior exposure to certain infectious agents and by testing for the presence of certain viral markers.

In addition, the manufacturing process for Rh(D) Immunoglobulin-VF contains specific steps to reduce the possibility of viral transmission including pasteurisation for viral inactivation and nanofiltration for virus removal. The current procedures applied in the manufacture of this product are effective against enveloped viruses such as human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV), and the non-enveloped viruses, such as hepatitis A virus (HAV) and human parvovirus B19. Additionally, the product contains specific antibodies directed against human parvovirus B19.

There is no evidence to date that parvovirus B19 can be transmitted by Rh(D) Immunoglobulin-VF, which is known to contain antibodies to the virus and the

nanofiltration step of the manufacturing process has been shown to remove such viruses (or viruses of similar size).

Immunoglobulins for intramuscular injection, prepared by this process from plasma screened by current methods, have not been implicated in the transmission of viral infectious diseases including human immunodeficiency virus (HIV). Studies using plasma spiked with HIV have shown that the Cohn cold-ethanol fractionation process produces a very large reduction in virus titre with undetectable levels in the immunoglobulin fraction. Epidemiological studies have not recognised any cluster of AIDS patients or HIV seroconversion in immunoglobulin recipients.

Despite these measures, such products may still potentially transmit disease. There is also the possibility that other known or unknown infectious agents may be present in such products.

Vaccination for patients in receipt of medicinal products from human plasma should be considered where appropriate.

### **Use in the elderly**

The use of this product in the elderly population has not been established in appropriate studies. To date, this population is not over-represented in spontaneous reports of adverse events associated with the use of CSL's intramuscular immunoglobulin products.

### **Paediatric use**

The use of this product in the paediatric population has not been established in appropriate studies. To date, this population is not over-represented in spontaneous reports of adverse events associated with the use of CSL's intramuscular immunoglobulin products.

### **Effects on laboratory tests**

After injection of immunoglobulin, the transitory rise of the various passively transferred antibodies in the patient's blood may result in misleading positive results in serological testing.

The results of blood typing and antibody testing including the Coombs test, are significantly affected by the administration of anti-D immunoglobulin. **When performing red cell antibody screening, take blood prior to the administration of Rh(D) Immunoglobulin-VF.**

## **4.5 INTERACTIONS WITH OTHER MEDICINES AND OTHER FORMS OF INTERACTIONS**

Rh(D) Immunoglobulin-VF should not be mixed with other pharmaceutical products, except as indicated (see section 4.2 Dose and method of administration).

*Live attenuated virus vaccines:* Passively acquired antibody can interfere with the response to live, attenuated virus vaccines. Therefore, administration of such vaccines, e.g. poliomyelitis or measles, should be deferred until approximately three months after passive immunisation. By the same token, immunoglobulins should not be administered for at least two weeks after such a vaccine has been given.

## **4.6 FERTILITY, PREGNANCY AND LACTATION**

### **Effects on fertility**

No reproductive toxicity studies have been conducted with Rh(D) Immunoglobulin-VF. There have been no reports of such effects associated with the use of CSL's plasma-derived therapeutic medicines.

### **Use in pregnancy**

The safety of this medicinal product for use in human pregnancy has not been established in controlled clinical trials. The use of anti-D immunoglobulin during the third trimester in doses as high as 1500 IU antibody has been reported to produce no evidence of haemolysis in the infant. The presence of passively administered Rh(D) Immunoglobulin-VF in the maternal blood sample can, however, affect the interpretation of laboratory tests to identify the patient as a candidate for Rh(D) Immunoglobulin-VF.

### **Use in lactation**

The safety of this medicinal product for use during lactation has not been established in controlled clinical trials. Immunoglobulins are excreted in breast milk, however, it is not known whether this applies to passively administered Rh(D) Immunoglobulin-VF.

## **4.7 EFFECTS ON ABILITY TO DRIVE AND USE MACHINES**

Rh(D) Immunoglobulin-VF has no influence on the ability to drive and use machines.

## **4.8 ADVERSE EFFECTS (UNDESIRABLE EFFECTS)**

Local tenderness, erythema and stiffness may occur at the site of injection and may persist for several hours. This may occur after any intramuscular injection. In the clinical trial with Hepatitis B Immunoglobulin, the following general and local reactions were recorded in the 58 healthy subjects (total number of events, up to and including 7 days post injection; pasteurised/unpasteurised product): malaise (20/22 events), drowsiness (13/17 events), induration (10/4 events), sensation of fever (4/4 events), chills (3/3 events), sweating (3/1 events) and warmth/heat when touched (0/4 events). There was an overall higher reporting of local tolerance adverse events at the injection site for the unpasteurised product, such as pain (32/52 events), bruising (10/22 events), redness (2/8 events) and irritation (2/4 events).

Mild pyrexia, malaise, drowsiness and urticaria have been reported occasionally after injections of immunoglobulins. True allergic responses are rare. Skin lesions, headache, dizziness, nausea, generalised hypersensitivity reactions and convulsions have been reported on rare occasions.

### **Reporting suspected adverse effects**

Reporting suspected adverse reactions after registration 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 at [www.tga.gov.au/reporting-problems](http://www.tga.gov.au/reporting-problems).

## **4.9 OVERDOSE**

The consequences of overdosage are not known.

For information on the management of overdose, contact the Poisons Information Centre on 13 11 26 (Australia).

## **5 PHARMACOLOGICAL PROPERTIES**

### **5.1 PHARMACODYNAMIC PROPERTIES**

#### **Mechanism of action**

Rh(D) Immunoglobulin-VF is manufactured from human plasma donated donors who have been immunised to the Rh antigen 'D'. Donations are selected on the basis that they contain high levels of antibodies to the Rh antigen 'D'.

Rh(D) Immunoglobulin-VF contains high levels of antibodies (mainly IgG) directed against the D antigen of Rh-positive red cells. Rh(D) Immunoglobulin-VF acts by suppressing the immune response in Rh negative individuals to Rh(D) positive red cells. Such exposure follows the passage of cells from the foetal to the maternal circulation or the accidental transfusion of Rh(D) positive red cells to an Rh(D) negative individual.

#### **Clinical trials**

Clinical studies indicate that the administration of anti-D immunoglobulin to an Rh(D) negative mother within 72 hours of the birth of an Rh(D) positive infant reduces the incidence of Rh isoimmunisation from 12–13% to 1–2%. A small number (1.5–1.8%) of Rh negative mothers are immunised by their Rh positive foetuses despite administration of anti-D immunoglobulin postpartum. Studies have shown that this number can be reduced to less than 1.0% by administering two doses of anti-D immunoglobulin, the first at 28 weeks gestation and the second following delivery.

A comparative clinical trial was conducted to investigate the effect of pasteurisation on the *in vivo* behaviour of intramuscular immunoglobulins using Hepatitis B Immunoglobulin (pasteurised and unpasteurised) as the representative of this group of products.

Fifty-eight (58) healthy subjects (28 males and 30 females) each received an intramuscular injection of pasteurised (viral inactivated) or unpasteurised Hepatitis B Immunoglobulin. No significant clinical differences were observed.

Twenty-eight (28) subjects received the viral inactivated product. Maximal serum concentration of IgG was reached after  $8.0 \pm 5.5$  days (mean  $\pm$  s.d.), and the estimated half life of IgG was  $27.2 \pm 6.6$  days (mean  $\pm$  s.d.). These values are consistent with ranges observed with other intramuscular immunoglobulin products.

A clinical trial with Rh(D) Immunoglobulin-VF has not been conducted.

## **5.2 PHARMACOKINETIC PROPERTIES**

Refer to Section 5.1 Pharmacodynamic Properties.

## **5.3 PRECLINICAL SAFETY DATA**

### **Genotoxicity**

No genotoxicity studies have been conducted with Rh(D) Immunoglobulin-VF. There have been no reports of such effects associated with the use of CSL's plasma-derived therapeutic medicines.

### **Carcinogenicity**

No carcinogenicity studies have been conducted with Rh(D) Immunoglobulin-VF. There have been no reports of such effects associated with the use of CSL's plasma-derived therapeutic medicines.

## **6 PHARMACEUTICAL PARTICULARS**

### **6.1 LIST OF EXCIPIENTS**

Refer to Section 2 Qualitative and quantitative composition.

### **6.2 INCOMPATIBILITIES**

Incompatibilities were either not assessed or not identified as part of the registration of this medicine.

### **6.3 SHELF LIFE**

In Australia, information on the shelf life can be found on the public summary of the Australian Register of Therapeutic Goods (ARTG). The expiry date can be found on the packaging.

### **6.4 SPECIAL PRECAUTIONS FOR STORAGE**

Store at 2°C to 8°C (Refrigerate. Do not freeze). Protect from light. Do not use after the expiry date shown on the label.

### **6.5 NATURE AND CONTENTS OF CONTAINER**

Rh(D) Immunoglobulin-VF solution for intramuscular injection is available in single vials containing 625 IU or 250 IU anti-D antibody. The actual volume in the vial is stated on the label.

**Note: Supplies of suitable plasma for Rh(D) Immunoglobulin-VF production are scarce. Individuals who have Rh(D) antibodies should be urged to enrol as voluntary blood donors.**

### **6.6 SPECIAL PRECAUTIONS FOR DISPOSAL**

In Australia, any unused medicine or waste material should be disposed of in accordance with local requirements.

### **6.7 PHYSICOCHEMICAL PROPERTIES**

#### **Chemical structure**

Not applicable

#### **CAS Number**

None assigned

## **7 MEDICINE SCHEDULE (POISONS STANDARD)**

S4

## **8 SPONSOR**

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## **9 DATE OF FIRST APPROVAL**

15 October 2010

## **10 DATE OF REVISION**

30 April 2020

### **SUMMARY TABLE OF CHANGES**

<b>Section Changed</b>	<b>Summary of new information</b>
<b>All</b>	PI updated to the new format.
<b>4.7</b>	Information added about effects on ability to drive and use machines
<b>8</b>	Name changed to Australian Red Cross Lifeblood