Vaccination

COVID-19 VACCINATION

HPC donors should be considered high priorities for vaccination against COVID-19, and encouraged to vaccinate as early as possible.

In principle the vaccination should take precedence over the donation schedule, with donor mobilisation and/or collection scheduled around vaccine administration to allow appropriate intervals between vaccination, G-CSF mobilisation and collection.

HPC or MNC donation after COVID-19 vaccination

Compiling comprehensive and accurate side effect data on COVID-19 vaccines remains critically important. G-CSF can cause similar side effects to vaccines, so an appropriate interval should be scheduled between vaccination and donor conditioning in order to minimise the risk of side effects combining or being attributed to the wrong injection.

A rare vaccine-induced immune thrombotic thrombocytopaenia syndrome (TTS; aka VITT, VIPIT, VATT) has been reported after the AstraZeneca and Johnson & Johnson vaccines. While published evidence for an adverse immune interaction with G-CSF is so far lacking, it would be prudent to avoid G-CSF within the most likely period of TTS onset following vaccination – as well as apheresis and marrow collection in case of unrecognised thrombocytopaenia. Symptom onset can potentially occur 42 days or more after vaccination, though a clear majority of cases present within 28 days.

Immune thrombocytopaenic purpura (ITP) has also been reported as a rare complication after all types of COVID-19 vaccine, prompting some countries to recommend a minimum 14-day waiting period between vaccination and HPC collection or G-CSF conditioning.

Recommendations: to avoid overlap or interaction between vaccine and G-CSF side effects, donor mobilisation should not commence until at least 24 hours after the complete resolution of vaccine side effects. Given that the immediate side effects of COVID-19 vaccination can last several days, G-CSF mobilisation in a volunteer HPC(A) donor should ideally be scheduled at least 7 days after a COVID-19 vaccine dose to avoid an unexpected delay to G-CSF mobilisation due to persistent vaccine side effects. Where possible, a 14-day interval will also provide cover for the rare complication of ITP. The same intervals can also be applied to HPC(M) and MNC(A) collection scheduling*.

For the AstraZeneca and Johnson & Johnson vaccines, and as a precautionary measure any other virus vector-based COVID-19 vaccines, a minimum 28-day interval between vaccination and G-CSF or collection would cover the onset of most TTS cases reported to date, while a 42-day interval would cover virtually all cases**.

A minimum 28-day interval will also cover the prevalent regulatory requirements for live/attenuated vaccines, such as a COVID-19 vaccine utilising a virus vector that is capable of replication.

Where available, using a COVID-19 vaccine that does not use a virus vector will therefore minimise delays for HPC(A) donors.

**While it is common to experience a more serious reaction following the second dose of an mRNA-based vaccine, many donors report minimal or no symptoms after any dose. For such donors it may be reasonable to schedule a shorter post-vaccine interval if they receive a booster dose of the same mRNA vaccine.*

***The majority of TTS cases have been reported after the first dose of vaccine, and the risk appears to be much lower after the second dose. Therefore a shorter post-vaccine interval could be considered after a second or subsequent dose of a virus vector-based vaccine.*

COVID-19 vaccination after HPC or MNC donation

While there is no available evidence on the effect of HPC or MNC donation on COVID-19 vaccine effectiveness, there is a theoretical concern that a reduced number of immune effector cells could have an adverse effect on the immune response to vaccination.

This concern is tempered by a number of known factors:

1. HPC(A) donation does not typically reduce white blood cell numbers, due to G-CSF mobilisation.
2. HPC(M) donation only causes a minimal reduction in WBC numbers.
3. This theoretical concern is not specific to COVID-19 vaccines, and there is a lack of existing evidence for such an effect on other vaccines.

In contrast to HPC donation, MNC(A) donation does result in a significant reduction in total white blood cell numbers. However, this is mitigated by the observation that peripheral WBC numbers after MNC(A) often remain as high or higher than pre-donation baseline levels due to natural mobilisation from peripheral pooling spaces.

Hence the physiological basis for this concern is limited, and provides little justification for a prolonged interval between MNC(A) and COVID-19 vaccination.

For the AstraZeneca, Johnson & Johnson and possibly other virus vector-based COVID-19 vaccines, there is a theoretical concern that immune stimulation following G-CSF mobilisation could increase the risk of TTS. However, there is currently insufficient data to predict the safe post-HPC(A) interval in this situation, and perhaps the best strategy for donors for whom COVID-19 vaccination is indicated following HPC(A) collection will be to choose, where available, a vaccine that does not use a virus vector.

Recommendations: a COVID-19 vaccine should not be given until the donor has fully recovered from HPC or MNC donation. Virus vector vaccines could theoretically have a greater risk of TTS following G-CSF within an unknown timeframe, and where available it would be prudent to use an alternative vaccine that does not use a virus vector following HPC(A) donation.

Summary tables

AFTER VACCINATION WITH:	DONATION MAY PROCEED:
A COVID-19 vaccine that utilises a virus vector	• HPC(A) – schedule G-CSF start date no less than 28 days, and where possible 42 days*, after vaccination. • HPC(M) & MNC(A) – schedule collection date no less than 28 days, and where possible 42 days*, after vaccination.
Any other COVID-19 vaccine	• HPC(A) – schedule G-CSF start date no less than 7 days, and where possible 14 days*, after vaccination. • HPC(M) & MNC(A) – schedule collection date no less than 7 days, and where possible 14 days*, after vaccination.
***A shorter interval may be considered after second and subsequent doses of a virus vector-based vaccine, as the risk of TTS is much lower. In addition, donors receiving a booster dose of an mRNA vaccine could be scheduled within 7 days if they have experienced minimal or no reaction to previous doses of the same vaccine – providing that G-CSF/collection does not commence within 24 hours of any unexpected vaccine reaction.*	

AFTER DONATING:	COVID-19 VACCINATION MAY BE GIVEN:
HPC(M) or MNC(A)	• All vaccines: after the donor has fully recovered from the donation.
HPC(A)	• Vaccines based on a virus vector: where available, an alternative vaccine should be used due to the theoretical risk of immune interaction with G-CSF. • Other vaccines: after the donor has fully recovered from the donation.