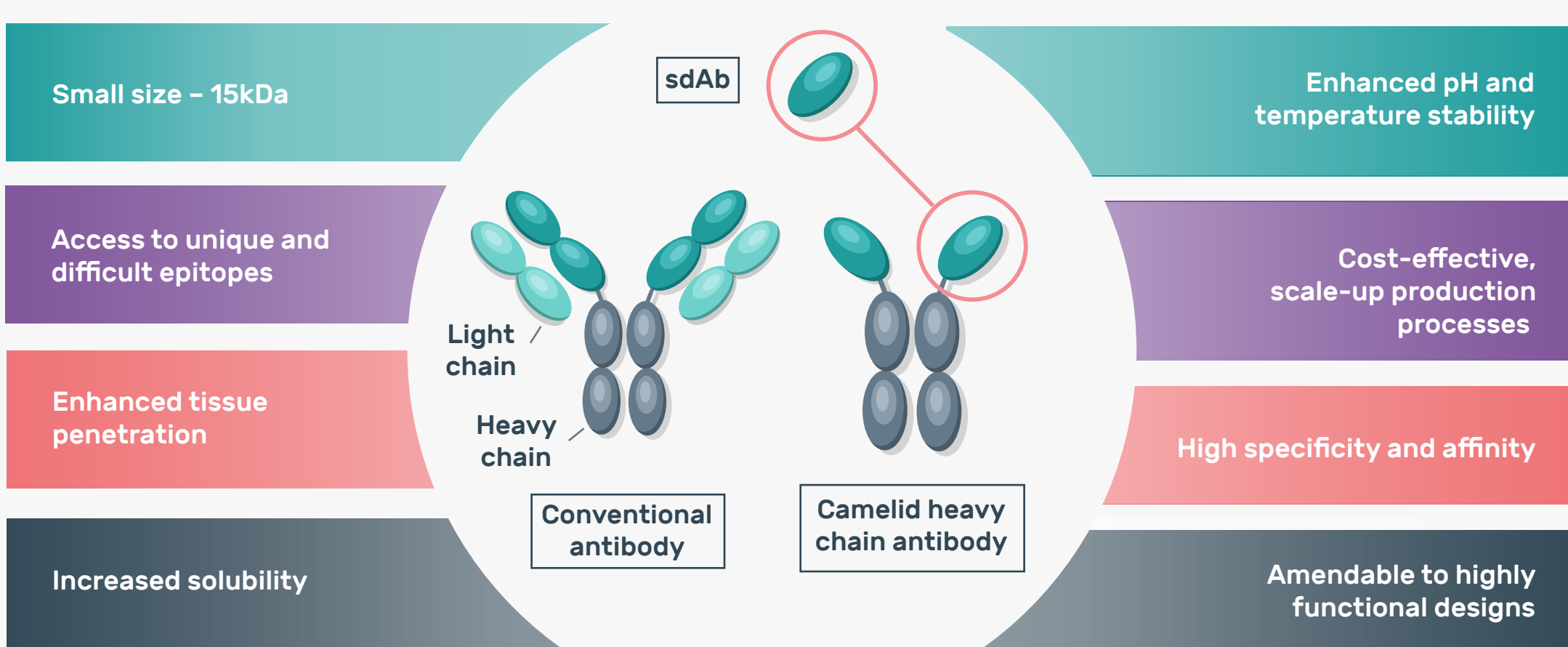


Single domain antibodies

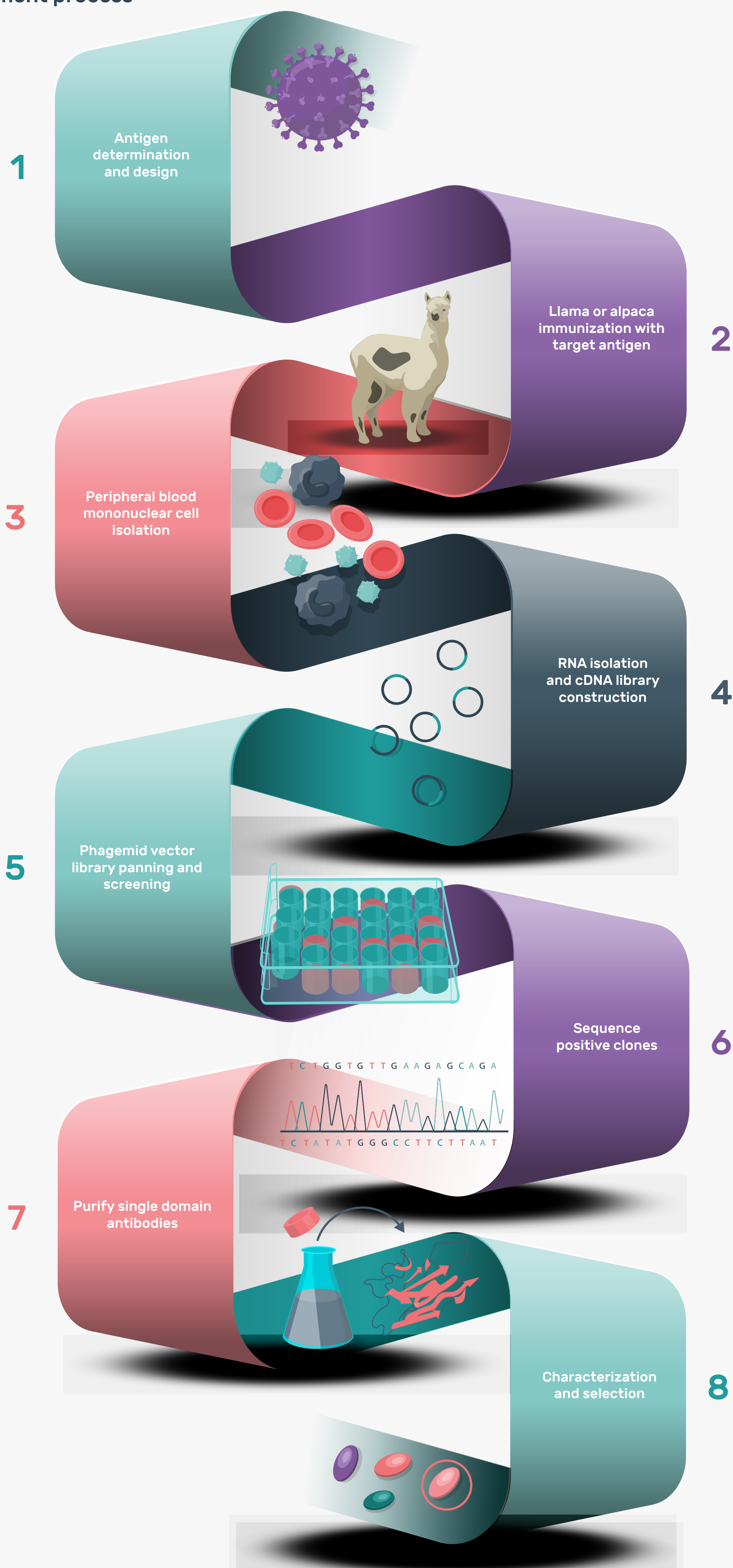
the next generation of recombinant antibodies

Single domain antibodies (sdAbs) are small antigen-binding fragments with unique characteristics that make them useful alternatives to conventional antibodies and important tools in research, diagnostics and therapeutics.

Unique attributes and capabilities of sdAbs



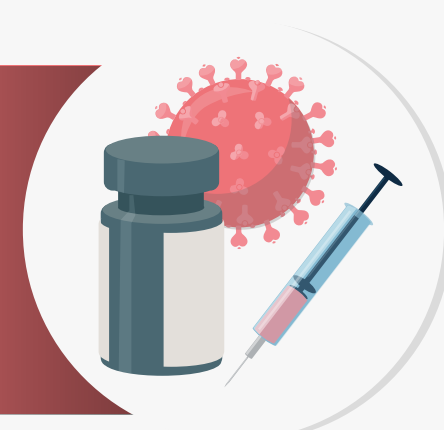
Development process



Applications

Therapeutics

sdAbs are small in size and amendable to multi-valent and multi-specific designs, making them excellent tools for therapeutics. Careful antigen design and clone screening can create powerful candidates targeting tumors, viruses, and other infectious diseases.



Imaging

sdAbs' unique characteristics of small size and high specificity allows for enhanced penetration and higher sensitivity creating crisp, low background images of hard to image targets. The benefit of smaller size also provides a short half-life via rapid clearance.

Crystallography and cryo-EM

sdAb scaffolds can be employed to act as chaperones, assisting in protein folding and stability.



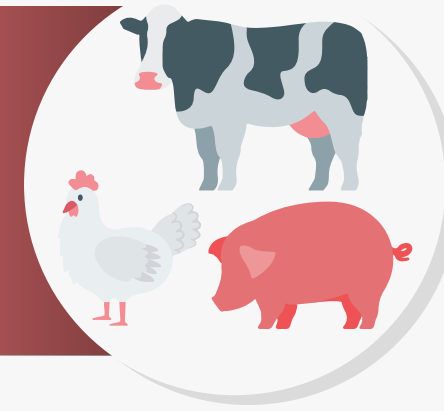
Diagnostics and biosensing

sdAbs have a small size, high affinity, and enhanced stability. These attributes, along with low-cost manufacturing, provide unique options for biosensing, point of care and other diagnostic tests.



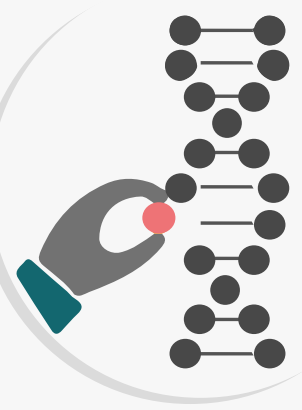
Agriculture

Remarkable stability and affordable manufacturing costs provide sdAbs with unique advantages. Researchers are now exploring the use of sdAbs as additives to livestock feed in order to provide immunity against infectious pathogens.



Cell engineering

Mammalian cells can be engineered to produce intracellular sdAbs that are directed against components of pathogens to slow down or prevent pathogenic effects and/or replication. Other approaches aim at up or down regulating cellular pathways at specific checkpoints.



This infographic has been created as part of a *BioTechniques* feature in association with ProSci Incorporated.