**V₁ vasopressin receptors**

These are Gq-protein coupled receptors, just like the Alpha-1 adrenoceptors.

These receptors are all heptaspanning membrane proteins.

The aim of acting them is to cause smooth muscle contraction, by stimulating the release of calcium from the sarcoplasmic reticulum.

These are the steps by means which this is achieved.

1. **Vasopressin**
2. **Gq**
3. **GTP**
4. **Phospholipase C (Beta)**
5. **Membrane phospholipid** (phosphatidylinositol-4, 5-bisphosphate, or PIP-2)
6. **Inositol triphosphate (IP₃)**
7. **Ca⁺⁺ release**
8. **Diacylglycerol (DAG)**
9. **Activated Protein kinase C**
10. **Protein Kinase C family of enzymes**

**V₁ receptor activation = an increase in intracellular calcium**

Calcium release causes activation of calmodulin-sensitive enzymes:
- Myosin light chain Kinase
- Calmodulin-dependent protein kinase (I and II) – CaM kinases;
- Phosphodiesterase (yes, the one that degrades cAMP and cGMP)

Yes, this is essentially the same thing the alpha-1 receptors do. The chief distinction is that the vasopressin receptors are more widely distributed. Plus, both can be activated at the same time, which is why the vasopressin infusion can be used as a noradrenaline-sparing drug in the ICU.