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# Novel Topical Composition to Provide Local Anesthesia and Facilitate Radial Artery Cannulation

Tech ID: 20036 / UC Case 2009-075-0

## BRIEF DESCRIPTION

UCSF cardiologists have developed a novel topical anesthetic composition that facilitates radial artery cannulation. This composition can be delivered either as a topical cream or through a transdermal patch and can be co-marketed with radial catheterization sheaths and cannulaes to increase product appeal to clinical users.

In clinical trials, this novel composition causes local increase of the arterial diamter (by 25% or more for at least 30 minutes) and provides local anesthesia in the patient, without inducing undesirable systemic effects, thus enabling clinicians to insert radial arterial catheters with greater ease, reduce the risk of spasm, and reduce pain experienced by patients undergoing this procedure.

## FULL DESCRIPTION

### BACKGROUND:

It is estimated that at least 5 million radial arterial catheters are inserted annually in the US, and over 10 million inserted worldwide, for measuring arterial blood pressure, blood gas chemistries, and performing cardiac catheterizations, among other applications. Precise radial artery cannulation is difficult to achieve due to the small size of the radial artery, the potential for spasm (leading to more difficult access to the radial artery), and pain. As such, radial artery cannulation can be stressful on the patient and clinician, so improved methods and compositions to facilitate the procedure and reduce pain are desirable.

### TECHNOLOGY DESCRIPTION:

UCSF cardiologists have developed a method for facilitating arterial access by applying a novel topical composition, comprising a vasodilation agent and an anesthetic agent, prior to cannulation. This novel composition causes local increase of the arterial diameter and provides local anesthesia in the patient, without inducing undesirable systemic effects. In Phase I clinical trials with human subjects, the method and topical compoisiton, comprised of nitroglycerin, a vasodilation agent, and lidocaine, an anesthetic agent, increased the radial artery diameter by 25% or more for at least 30 minutes. These effects will enable

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## INVENTORS

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## OTHER INFORMATION

### KEYWORDS

cardiac intervention, radial  
arterial catheterization,  
transdermal patch,  
nitroglycerin, lidocaine,  
anesthetic

### CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Medical**
- ▶ Delivery Systems
- ▶ Devices
- ▶ Other
- ▶ Therapeutics

### RELATED CASES

2009-075-0

clinicians to insert radial arterial catheters with greater ease, reduce the risk of spasms, and reduce pain experienced by patients undergoing this procedure.

The UCSF investigators will be conducting Phase II and III clinical trials using the topical nitroglycerin and lidocaine composition to reduce radial artery spasm in patients undergoing radial cardiac catheterization.

For more information, please refer to US Patent Application No. 12/712,636.

ADVANTAGES

- ▶ Faster and easier arterial cannulation.
- ▶ Reduce stress on patients and clinicians during cannulation procedure.
- ▶ Reduce complications.
- ▶ One possible topical composition includes agents that are FDA approved and routinely used in clinical care: nitroglycerin, a vasodilator, and lidocaine, an anesthetic agent.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,302,085	04/05/2016	2009-075

SUGGESTED USES

- ▶ The topical composition can be formulated as a lotion, cream, paste, gel, spray, ointment or foam.
- ▶ A transdermal patch can be used to deliver the topical composition.
- ▶ The topical composition can be marketed as a complete cannulation kit to include the topical composition along with radial catheterization sheaths and cannulaes to increase product appeal to clinical users.

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