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TEST REPORT

Test Report No: RZ16080102

Client: **SHENZHEN XFT ELECTRONICS CO.,LTD**

Name of Samples: **Quick-fit electrode**

Model / Type: **XFT-2001D-DJP**

Test Type: Registration ( )

Registration Supplement ( )

Others (✓) Certification Test

Guangzhou Medical Instruments Quality Surveillance and Inspection Center of State Food and Drug Administration

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Dong Guan Laboratory: Industry District, Zhang Village, Dong Guan

Shen Zhen Laboratory: No. 106,western,Fu An the mansion of science and technology, Nanshan,S&T park ,Shenzhen,Guangdong

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Zhan Jiang Laboratory: No. 60 Shenchuan Avenue Middle, Xiashan District, Zhanjiang,Guangdong 0759-2836885

Zhong Shan Laboratory: 1st floor, No. 1 building, No. 8-4 Buyun Road, Torch Development Zone, Zhongshan, Guangdong Province

0760-85289967

Fax: 020-66602400

Website: www.gdmit.cn

E-mail: gdmitc-ywb@gdda.gov.cn

Guangzhou Medical Instruments Quality Surveillance and Inspection Center of State Food and Drug Administration

Test Report №: RZ16080102

Name of Samples	Quick-fit electrode Send-off (√) Spot check ( )	Samples' Serial №	RZ16080102
Trademark	/	Model / Type	XFT-2001D-DJP
Client	SHENZHEN XFT ELECTRONICS CO.,LTD	Test Type	Certification Test
Client's Address	Room 203, Building 1, Shenzhen Biomedicine Innovations Industrial Park, #14 Jinhui Road, Pingshan New District, Shenzhen, China	Products' № / Lot №	2016-06
Manufacturer	SHENZHEN XFT ELECTRONICS CO.,LTD	Sampling Bill №	/
Corporation being inspected	SHENZHEN XFT ELECTRONICS CO.,LTD	Manufacturing date	2016.6.28
Sampled by	/	Samples' Quantity	10PCS+10PCS
Sampling Place	/	Cardinal Number of Samples	/
Sampling Date	/	Test Place	DongGuan Laboratory
Receiving Date	2016.8.30	Test Date	2016.8.30～2017.03.16
Test Items	Tests For In Vitro Cytotoxicity, Animal Skin Irritation Test, Guinea Pig Maximization Test		
Test According to	ISO 10993-5:2009 Biological evaluation of medical devices—Part 5: Tests for in vitro cytotoxicity ISO 10993-10:2010 Biological evaluation of medical devices—Part 10: Tests for irritation and skin sensitization		
Test Conclusion	For test results, see attachment. (Stamps of Test Organization) Issued Date: 2017.3.21		
Remarks	1) In this test report, —— means the item is not applicable, and / means the item is blank.		
Signature	Tested by: Reviewed by: Approved by(authorized signatory):		

№	Test Items	Standard's Clauses	Standard's Requirements	Test Results	Monomial Conclusion	Remarks
1	Test for in vitro cytotoxicity	/	/	Mild cytotoxicity	/	/
2	Animal skin irritation test	/	/	Negligible	/	/
3	Guinea pig maximization test	/	/	No sensitization	/	/
	The end					

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Name of Samples:	Quick-fit electrode	Test Items:	Test For In Vitro Cytotoxicity
Model / Type:	XFT-2001D-DJP	Test Environment:	Temperature:22℃ humidity:60%
Product' №/ Lot №:	2016-06	Test Date:	2016.10.17 ~ 2016.10.27
Producing date:	2016.6.28	Test According To:	ISO 10993-5:2009 Biological evaluation of medical devices—Part 5: Tests for in vitro cytotoxicity

TEST FOR IN VITRO CYTOTOXICITY

Tested on extracts by microscopic observation

SUMMARY

Based on the ISO 10993-5:2009, an *in vitro cytotoxicity* study was conducted on the test articles, Quick-fit electrode (Identification No.:RZ16080102) to determine the potential for cytotoxicity of the test article. With RPMI 1640 culture medium. detach the cells by trypsin-EDTA solution and then adjust the density of cells appropriately. Remove and resuspend the cells into each of a sufficient number of vessels for exposure to the extracts. Incubate the cultures at (37±1) ℃ with 5% (volume fraction) carbon dioxide until the cultures grown to subconfluently. Discard the culture medium, add the extracts of sample, blank control solution, negative control solution, positive control solution respectively, 3 parallel samples for each 1.8mL/ dish, every dish add 0.2mL calf serum. Incubate the cultures at 37±1℃ with 5% (volume fraction) carbon dioxide for 72h. After 72 hours culture, observe the culture dish under the microscope.

Under the conditions of the study, the negative controls and the positive controls met the requirements.

The cells of test group had not more than 50 % of the cells are round, devoid of intracytoplasmatic granules, no extensive cell lysis; not more than 50 % growth inhibition observable. The cytotoxicity grades of blank control and negative control is 0, positive control is 4, and test group is 2.The results proved that there was mild-cytotoxicity for the test article: Quick-fit electrode.

MATERIALS

The sample provided by the sponsor was identified and handled as follows:

Test article:	Quick-fit electrode
State:	Solid，not dissolved in water.
Identification No.:	RZ16080102
Storage conditions:	Room temperature
Cell lines:	ATCC CCL1 mouse fibroblasts L929 cells (Supplied by Shanghai Institute for Biological Sciences)
Culture medium:RPMI 1640	GIBCO（Batch No. AAFO23615）
Foetal bovine serum (FBS):	GIBCO（Batch No.1517927）
Extraction vehicle:	10% Fetal Bovine Serum RPMI 1640 (1×RPMI 1640)
Test article preparation:	Based on ISO 10993-5:2009, the test article was sterilized by ultraviolet radiation for 2 h. The test article extract liquid was prepared with the ratio of 0.2 g/mL, under the condition of (37±1) ℃ for (24±2) h, and the extract medium was 1×RPMI 1640. The appearance of the extract liquid and extract vehicle had no deference and there were no particulates in the extract liquid. So the extract liquid didn't need to be processed by filtration, centrifugation or other methods to remove suspended particulates. Extract pH wasn't adjusted and the extract liquid was used instantly after the preparation.
Negative control preparation:	The high-density polyethylene bottles were washed with pure water and sterilized by ultraviolet radiation one night, shear it to fragments and extracted with 1×RPMI 1640 at the ratio of 3 cm^2/mL under aseptic operation, (37±1) ℃ for (24±2) h.
Positive control preparation:	Organo-tin poly（vinyl chloride）washed with pure water and dried, after ultraviolet radiation.The positive sample should be extracted with RPMI 1640 culture medium (1×) at the ratio of 0.2g/mL under aseptic operation,(37±1)℃ for (24±2)h.
Blank control preparation:	The same batch of 1×RPMI 1640 without the test article.

METHODS

Preparation of cells:

ATCC CCL1 mouse fibroblasts L929 cells were proliferated at (37±1) ℃, 5% CO_2 in RPMI 1640 which was supplemented with 10% fetal bovine serum and antibiotics (100 U/mL penicillin, 100 ug/mL streptomycin). After grew nearly confluent, the cells were trypsinized by trypsinization, removed and resuspended by enzymatic, and counted under a microscope. According to cell density, cells suspension was diluted to 1×10^5 cells/mL. Then the cells were inoculated to the 12 culture dishes which diameter is 35 mm, 2 mL/dish. Incubate the cultures at (37±1) °C with 5% (volume fraction) carbon dioxide in air until the cultures have grown to approximate subconfluency.

Test procedure:

Discard the culture medium and add the extracts of sample, blank control solution, negative control solution and positive control solution, respectively (3 parallel samples for each, 2.0 mL/dish). Incubate the cultures at (37±1) °C with 5% (volume fraction) carbon dioxide for 72 h. After 72 h culture, observe the culture dish under the microscope.

The identification of test system:

The test system was ATCC CCL1 mouse fibroblasts L929 cells. Historically, mouse fibroblasts L929 cells have been used for cytotoxicity studies because they have been demonstrated sensitivity to extractable cytotoxic articles.

Evaluation criteria:

Cytotoxicity grade was based on Table 1:

Table 1 Cytotoxicity grade

Grade	Reactivity	Conditions of all cultures
0	None	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth
1	Slight	Not more than 20 % of the cells are round, loosely attached and without intracytoplasmatic granules, or show changes in morphology; occasional lysed cells are present; only slight growth inhibition observable.
2	Mild	Not more than 50 % of the cells are round, devoid of intracytoplasmatic granules, no extensive cell lysis; not more than 50 % growth inhibition observable.
3	Moderate	Not more than 70 % of the cell layers contain rounded cells or are lysed; cell layers not completly destroyed, but more than 50 % growth inhibition observable.
4	Severe	Nearly complete or complete destruction of the cell layers.

For the test to be valid，the negative control must have a grade 0 or 1 and the positive control must have a grade 3 or 4. The test would have been repeated if the controls did not perform as anticipated. The test article with cytotoxicity grade greater than 2 is considered a cytotoxic effect.

RESULTS

The observations show discrete intracytoplasmic granules in blank control, negative control group and test article group after incubation for 72 h. No lysis can be found in those groups. Nearly all cells were round or lysis in positive control group. Cytotoxicity results shows as Table 2:

Table 2 Cytotoxicity results

Groups	Conditions of all cultures	Reactivity	Grade	Average value
Blank control - 1	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth	None	0	0
Blank control - 2	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth	None	0	
Blank control - 3	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth	None	0	
Negative control - 1	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth	None	0	0
Negative control - 2	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth	None	0	
Negative control - 3	Discrete intracytoplasmatic granules, no cell lysis, no reduction of cell growth	None	0	
Positive control - 1	Nearly complete or complete destruction of the cell layers.	Severe	4	4
Positive control - 2	Nearly complete or complete destruction of the cell layers.	Severe	4	
Positive control - 3	Nearly complete or complete destruction of the cell layers.	Severe	4	
Test article - 1	Not more than 50 % of the cells are round, devoid of intracytoplasmatic granules, no extensive cell lysis; not more than 50 % growth inhibition observable.	Mild	2	2
Test article - 2	Not more than 50 % of the cells are round, devoid of intracytoplasmatic granules, no extensive cell lysis; not more than 50 % growth inhibition observable.	Mild	2	
Test article - 3	Not more than 50 % of the cells are round, devoid of intracytoplasmatic granules, no extensive cell lysis; not more than 50 % growth inhibition observable.	Mild	2	

CONCLUSION

Under the conditions of this study, the negative control was a grade 0, the positive control was a grade 4, the test article was a grade 2, showed mild-cytotoxicity and met the requirement of ISO 10993-5:2009. All procedures have been performed according to standard operating procedures and standard protocols.

RECORD STORAGE

All raw data pertaining to this study and a copy of the final report are to be retained in designated archive files in our center.

Name of Samples:	Quick-fit electrode	Test Items:	Animal Skin Irritation Test
Model / Type:	XFT-2001D-DJP	Test Environment:	Temperature:22℃ Humidity:60%
Product' №. / Lot №.:	2016-06	Test Date:	2016.9.07 ~ 2016.9.12
Producing date:	2016.6.28	Test According To:	ISO 10993-10:2010 Biological evaluation of medical devices—Part 10: Tests for irritation and skin sensitization

ANIMAL SKIIN IRRITATION TEST (SINGLE-EXPOSURE)

Skin irritation study in the New Zealand rabbit with polar extraction vehicle and non - polar extraction vehicle

SUMMARY

The test article, Quick-fit electrode （Identification No. RZ16080102）, was evaluated for skin irritation in accordance with the standard of the ISO 10993-10:2010 Biological evaluation of medical devices – Part 10: Tests for irritation and skin sensitization. The 0.9% physiological saline and cottonseed oil extracts of the test article were evaluated for their potential to produce irritation after pasting the sample extract solution on New Zealand White Rabbits. The sites were graded for erythema and oedema at (1±0.1) h, (24±2) h, (48±2) h and (72±2) h after removal of the test and solvent controls.

Under the conditions of the study, no erythema and oedema was observed on the skin of the rabbits. The Primary Irritation Index for the test article was calculated to be 0.0 and the Primary Irritation Index for the solvent controls was calculated to be 0.0.

The Primary Irritation Index for the test article was calculated to be 0.0, the irritation response categories was negligible. The requirement of the ISO 10993-10:2010 animal skin irritation test (single-exposure test) was met by the test article.

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MATERIALS

The sample provided by the sponsor was identified and handled as follows:

Test article:	Quick-fit electrode
State:	Solid，not dissolved in water.
Identification No.:	RZ16080102
Storage conditions:	Room temperature
Article prospective application	Body surface
Extract vehicle:	Polar extraction vehicle: 0.9% physiological saline Non- Polar extraction vehicle: Cottonseed oil (ACROS, Batch No.LO60O16)
Negative control	Polar extraction vehicle: 0.9% physiological saline Non- Polar extraction vehicle: Cottonseed oil (ACROS, Batch No. LO60O16)
Positive control	10% Sodium lauryl sulphate (SLS)（Xilong Chemical Co., Ltd ; Batch No:1008011）
Extract preparation:	Based on ISO 10993-12:2012, the test article extract liquid was prepared with the ratio of 0.2 g/mL under the condition of (37±1) ℃ for (72±2) h, and the extract medium was 0.9% physiological saline and cottonseed oil, respectively. The vehicle without test article was similarly prepared to serve as the blank control. The appearance of the extract liquid and extract vehicle had no deference and there were no particulates in the extract liquid. So the extract liquid didn't need to be processed by filtration, centrifugation or other methods to remove suspended particulates. Extract pH wasn't adjusted and the extract liquid was used instantly after the preparation.

METHODS

Test system (animals):

Species:	Rabbit
Strain:	New Zealand White
Number of animals:	Six
Sex:	No particular gender was prescribed for this test
Body weight range:	2.4 kg to 2.8 kg
Age:	Young adult
Source:	Huadong Xinhua Medical Laboratory Animal Farm, Passed No.: SCXK(粤)2014-0023(44411600002739)
Acclimation period:	7 days

Justification of Test System:

The rabbit is an appropriate animal for evaluating potential skin irritants test, recommend by the current ISO standards. The rabbit is widely used for this purpose and relative rank of irritant scores can be determined.

Animal Management:

Husbandry:	Conditions conformed to ISO 10993-2:2006 Animal welfare requirements.
Feed:	High fiber rabbit feed was provided daily.
Water:	Freely available water was delivered through an automatic watering system.
Contaminants:	Reasonably expected contaminants in food or water supply did not have the potential to influence the outcome of this test.
Housing:	Animals were individually housed in stainless steel suspended cages identified by a card indicating the animal number, test code, sex, animal code, date and doses.
Environmental:	The room temperature and humidity were monitored daily. The temperature range for the rabbit was 20-25 ℃ in air conditional room. The humidity range for the rabbit was 40-70%. The light cycle was controlled using an automatic timer (12 hours light, 12 hours dark).
Facility:	Guangzhou medical instruments quality surveillance and inspection center of state food and drug administration (Dongguan laboratory) is an accredited facility and registered with the State Food and Drug Administration of China.
Personnel:	Associates involved were appropriately qualified and trained.
Selection:	Only healthy, previously unused animals were selected.

Experimental Procedure:

On the day prior to treatment, the fur on each rabbit's back was clipped with an electric clipper. On the day of treatment, four sites, two on each side of the back that positioned cranial to caudal, were designated on each rabbit. The sites were free of blemishes that could interfere with the interpretation of results.

The 25 mm×25 mm four ply gauze patches with the test article extract were applied to each site (Fig.1.). The patches were covered with a non-irritative bandage. The control sample (25 mm×25 mm four ply gauze patches with 0.9% physiological saline or cottonseed oil) was similarly applied to the sites that showed as below (Fig.1.). The trunk of each animal was wrapped with an elastic binder to maintain the test article and control patches in the position.

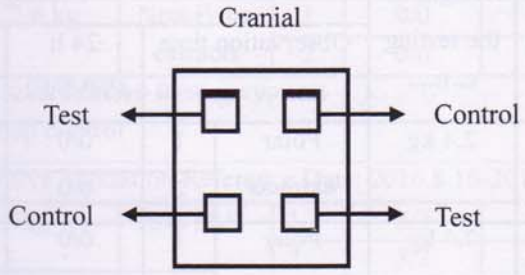


Fig.1. The test site of primary skin irritation

After the 4-hour exposure, the patches were removed. The dermal responses for erythema and oedema were observed and recorded at (1±0.1) h, (24±2) h, (48±2) h and (72±2) h after removal of test article patches in accordance with the item 6.3.6 of ISO 10993-10:2010 (see Table 3).

The Primary Irritation Indexes of the test and solvent controls were calculated after test completed (only the data of (24±2) h, (48±2) h and (72±2) h were used for calculating).

Table 3 Primary or cumulative irritation index categories in a rabbit

Mean score	Response category
0 to 0.4	Negligible
0.5 to 1.9	Slight
2 to 4.9	Moderate
5 to 8	Severe

RESULTS

The scores of the dermal reaction for erythema, eschar and oedema were appeared in Table 4. Under the conditions of this study, no erythoma and oedema was observed on the skin of the rabbits. The Primary Irritation Index of the test article, Quick-fit electrode, was calculated to be 0.0 (see Table 4).

No erythema and oedema were observed on the skin of the rabbits of the negative control groups and the scores of dermal erythema and oedema of the rabbits were 0.0. Obvious erythema and oedema were observed on the skin of the positive control group rabbits. And the eschar and haemorrhage were observed on the skin of part of positive control group rabbits. Positive validation test is performed every six (6) months. The skin sensitization percentage was 100% for positive control group animals.

Table 4 The scores of the dermal reaction for erythema, eschar and oedema

Group	Rabbit No.	Weight of the testing before	Scoring Interval					
			Observation time		24 h (ER/OE)	48 h (ER/OE)	72 h (ER/OE)	Score Average
Test	1#	2.4 kg	Polar extracts	1	0/0	0/0	0/0	0.0
				2	0/0	0/0	0/0	
	2#	2.5 kg	Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	3#	2.4 kg	Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	4#	2.6 kg	Non-Polar extracts	1	0/0	0/0	0/0	0.0
				2	0/0	0/0	0/0	
	5#	2.4 kg	Non-Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	6#	2.6 kg	Non-Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	

Group	Rabbit No.	Weight of the testing before	Scoring Interval					
			Observation time		24 h (ER/OE)	48 h (ER/OE)	72 h (ER/OE)	Score Average
Negative control	1#	2.4 kg	Polar extracts	1	0/0	0/0	0/0	0.0
				2	0/0	0/0	0/0	
	2#	2.5 kg	Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	3#	2.5 kg	Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	4#	2.6 kg	Non-Polar extracts	1	0/0	0/0	0/0	0.0
				2	0/0	0/0	0/0	
	5#	2.5 kg	Non-Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	6#	2.6 kg	Non-Polar extracts	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
The average general scores subtracted from group test and group control					0.0			
Positive Validation Reference Date: 2016.8.16-2016.8.25								
Positive control	1#	2.4kg	10% SLS	1	3/2	4/3	4/3	6.3
				2	3/2	4/3	4/3	
	2#	2.4 kg	10% SLS	1	3/2	4/3	4/3	
				2	3/2	4/3	4/3	
	3#	2.5 kg	10% SLS	1	3/2	4/3	4/3	
				2	3/2	4/3	4/3	
Negative control	1#	2.5kg	0.9% physiological saline	1	0/0	0/0	0/0	0.0
				2	0/0	0/0	0/0	
	2#	2.4 kg	0.9% physiological saline	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	
	3#	2.5 kg	0.9% physiological saline	1	0/0	0/0	0/0	
				2	0/0	0/0	0/0	

Remark: ER for erythema and eschar and OE for oedema.

CONCLUSION

The Primary Irritation Index of the test article was calculated to be 0.0. The irritation response category in rabbit was negligible.

The requirements of the ISO 10993-10: 2010 animal skin irritation test (single-exposure test) was met by the test article. All procedures have been performed according to standard operating procedures and standard protocols.

Results and conclusions apply only to the test articles tested. No further evaluation of these results is made by. Any extrapolation of these data to other samples is the responsibility of the sponsor.

RECORD STORAGE

All raw data pertaining to this study and a copy of the final report are to be retained in designated archive files in our center.

Name of Samples:	Quick-fit electrode	Test Items:	Guinea Pig Maximization Test
Model / Type:	XFT-2001D-DJP	Test Environment:	Temperature:22℃ Humidity:60%
Product' №. / Lot №.:	2016-06	Test Date:	2016.8.30 ~ 2016.9.30
Producing date:	2016.6.28	Test According To:	ISO 10993-10:2010 Biological evaluation of medical devices—Part 10: Tests for irritation and skin sensitization

SKIN SENSITIZATION TEST

Guinea pig maximization test with polar extraction vehicle and non - polar extraction vehicle

SUMMARY

A skin sensitization study was designed to assess the possible contact hazards from chemicals released that cause skin sensitization. The test article was Quick-fit electrode (sample's identification No.: RZ16080102). The study was conducted in accordance with the requirements of ISO 10993-10:2010 Biological evaluation of medical devices – Part 10: Tests for irritation and skin sensitization.

The test article extract liquid, 0.9% physiological saline or cottonseed oil, 0.1% DNCB were injected into intradermal of each animal at the injection sites that were shown in Fig.1, Fig.2, Fig.3. Seven days after the intradermal injection stage, the second dermal induction was carried out. 14 days after second induction, challenging procedure was performed on the hind flank unused sites of the animal. A 25 mm×25 mm portion of filter paper soaked the test article extract liquid, 0.9% physiological saline and 0.1% DNCB were respectively applied to the area of the test, negative control and positive control animals and secured with an occlusive dressing. The dressing and patches were left in place for 24 h. The skin reactions of the sites were graded for erythema and oedema at 24 and 48 hours after removed the dressing and patches.

For the test article group, no erythema and oedema were observed on the skin of guinea pigs. The grades of dermal erythema and oedema of the animal were 0. No erythema and oedema were observed on the skin of animals of negative control group; the grades of dermal erythema and oedema of the guinea pig were 0. Obvious erythema and oedema were observed on the skin of the positive control group guinea pig, eschar and haemorrhage were observed on the skin of the positive control group guinea pigs.

Under the conditions of this study, no erythema and oedema were observed in the test article group. The results showed that there was no skin sensitization response for the test article.

MATERIALS

The sample provided by the sponsor was identified and handled as follows:

Test article:	Quick-fit electrode
State:	Solid, not dissolved in water.
Identification No.:	RZ16080102
Storage conditions:	Room temperature
Extract vehicle:	Polar extraction vehicle: 0.9% physiological saline (Batch No.15071601) Non - Polar extraction vehicle: Cottonseed oil (ACROS, Batch No.LO60O16)
Negative control	Polar extraction vehicle: 0.9% physiological saline (Batch No.16030654) Non - Polar extraction vehicle: Cottonseed oil (ACROS, Batch No.LO60O16)
Positive control	0.1% DNCB
Extract preparation:	Based on ISO 10993-12:2012, the test article extract liquid was prepared with the ratio of 0.2 g/mL under the condition of (37±1) ℃ for (72±2) h, and the extract medium was 0.9% physiological saline and cottonseed oil, respectively. The vehicle without test article was similarly prepared to serve as the blank control. The appearance of the extract liquid and extract vehicle had no deference and there were no particulates in the extract liquid. So the extract liquid didn't need to be processed by filtration, centrifugation or other methods to remove suspended particulates. Extract pH wasn't adjusted and the extract liquid was used instantly after the preparation. After intradermal induction phase, at second induction and challenge phase, the fresh test article liquid was prepared again in the same way. And the extract liquid was used instantly after the preparation.
Additional material:	Freund's Complete adjuvant (SIGMA, Batch No:SLBF9338V), 10% Sodium lauryl sulphate (SLS) (Xilong Chemical Co , Batch No:1008011)

METHODS

Test system:

Species:	Guinea pig
Strain:	Albino
Source:	Guangdong Medical Laboratory Animal Center. Passed No.: SCXK(YUE)2014-0035(44411600002766)
Sex:	Males or nulliparous and non-pregnant Females
Body weight range:	359 g to 395 g
Age:	Healthy and young adults
Acclimation period:	7 days
Number of animals:	30
Identification method:	Label

Justification of Test System:

The guinea pig is specified an appropriate animal for evaluating potential allergic response by the current ISO standards. The guinea pig is widely used for this purpose. Intradermal injection and patching of the extract liquid of the test materials is employed on Guinea pig intact skin. Topical applications are related to the human exposure route. After challenge phases, reactions of the topical application site can directly be observed. Reactions of the topical application site can be discriminated potential sensitivity on contact skin of animals.

Animal Management:

Husbandry:	Conditions conformed to the standard of ISO 10993-2:2006: Biological evaluation of medical devices – Part 2: Animal welfare requirements.
Food:	The food of guinea pig was provided daily.
Water:	Freely available, municipal water was delivered through an automatic watering system.
Contamination:	Reasonably expected contaminations in feeding stuffs or water supply did not have the potential to influence the outcome of this test.
Housing:	Animals were housed in groups in stainless steel suspended cages identified by a card indicating the animal numbers, test code, sex, animal code, date and doses.

Environmental: The room temperature and humidity were monitored daily. The temperature range for the Guinea pig was 20-25 ℃ in air conditional room. The humidity range for the Guinea pig was 40-70%. The light cycle was controlled using an automatic timer (12 hours light, 12 hours dark).

Personnel: Associates involved were appropriately qualified and trained.

Facility: Guangzhou medical instruments quality surveillance and inspection center of state food and drug administration (Dongguan laboratory) is an accredited facility and registered with the State Food and Drug Administration of China.

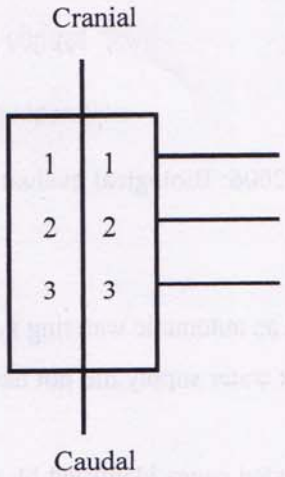
Selection: Only healthy, previously unused animals were selected.

Experimental Procedure:

Intradermal induction (in first stage):

One day prior to the intradermal injection, the hair of the test animals (The neck-shoulder) was depilated with hair scissor. The following day, the skin was cleaned with 75% ethanol and a pair of 0.1 mL intradermal injections into each animal was made, as illustrated in Fig.1, Fig.2, Fig.3. The animals were observed for 7 days.

Test article group:



0.1 mL Freund's complete adjuvant application liquor

0.1 mL The test article extract liquid

0.1 mL emulsified in a 50:50[v:v] Freund's complete adjuvant application liquor and the test article extract liquid

Fig.1. Intradermal injection sites (test article groups).

Negative control group:

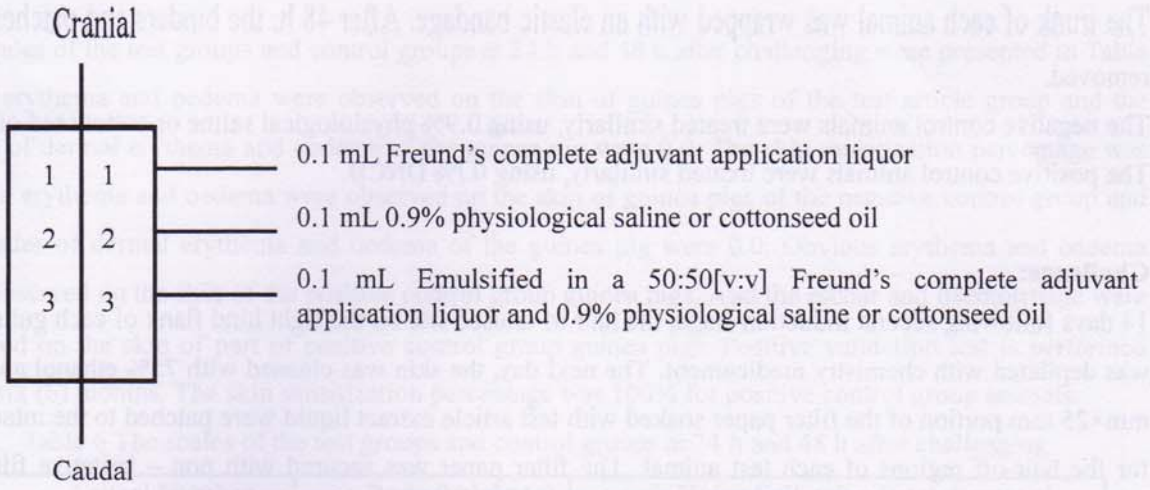


Fig.2. Negative control groups intradermal injection sites.

Positive control group:

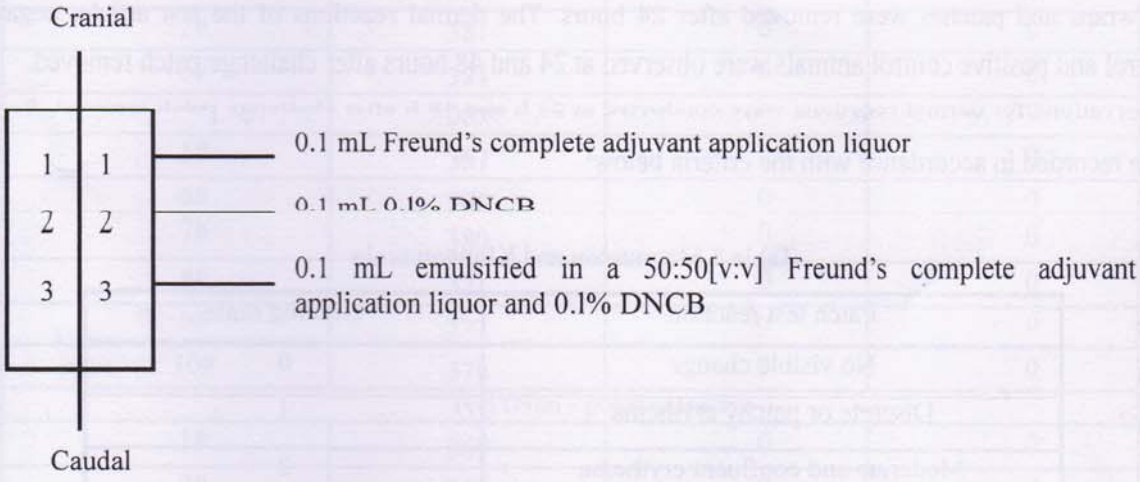


Fig.3. Positive control groups intradermal injection sites.

Topical induction (The second stage):

7 days after intradermal injection, if irritation symptom was not observed on the intradermal injection sites, the same area used during intradermal induction (in first stage) was clipped free of fur and treated with 10% sodium lauryl sulphate (SLS) suspension in petrolatum. The suspension was massaged into the skin over the injection site to provoke a mild acute inflammation. The area was left uncovered for 24 h. Then 8 cm^2 section of medical gauze, saturated with the test article extract, was applied to the previously injected

sites of the test animals. The control animal was similarly patched with the appropriate negative control. The trunk of each animal was wrapped with an elastic bandage. After 48 h, the binders and patches were removed.

The negative control animals were treated similarly, using 0.9% physiological saline or cottonseed oil.

The positive control animals were treated similarly, using 0.1% DNCB.

Challenge:

14 days following second induction stage, the hair of unused site on the right hind flank of each guinea pig was depilated with chemistry medicament. The next day, the skin was cleaned with 75% ethanol and a 25 mm×25 mm portion of the filter paper soaked with test article extract liquid were patched to the intact skin for the hair-off regions of each test animal. The filter paper was secured with non – irritative film and gauze. The flank of each animal was wrapped with an elastic bandage to hold the occluded test patch.

The negative control animals were treated similarly, using 0.9% physiological saline or cottonseed oil.

The positive control animals were treated similarly, using 0.1% DNCB.

All wraps and patches were removed after 24 hours. The dermal reactions of the test article, negative control and positive control animals were observed at 24 and 48 hours after challenge patch removed.

Observations for dermal reactions were conducted at 24 h and 48 h after challenge patch removal. Scores were recorded in accordance with the criteria below:

Table 5 Magnusson and Kligman scale

Patch test reaction	Grading scale
No visible change	0
Discrete or patchy erythema	1
Moderate and confluent erythema	2
Intense erythema and/or swelling	3

Magnusson and Kligman grades of 1 or greater in the test group in the test group generally indicate sensitization, provided grades of less than 1 are seen in negative control animals. If grades of 1 or greater are noted in the negative control animals, then the reactions of test animals that exceed the most severe reaction in negative control animals are presumed to be due to sensitization

RESULTS

The scales of the test groups and control groups at 24 h and 48 h after challenging were presented in Table 6. No erythema and oedema were observed on the skin of guinea pigs of the test article group and the grades of dermal erythema and oedema of the guinea pig were 0.0. The skin sensitization percentage was 0%. No erythema and oedema were observed on the skin of guinea pigs of the negative control group and the grades of dermal erythema and oedema of the guinea pig were 0.0. Obvious erythema and oedema were observed on the skin of the positive control group guinea pigs. And the eschar and haemorrhage were observed on the skin of part of positive control group guinea pigs. Positive validation test is performed every six (6) months. The skin sensitization percentage was 100% for positive control group animals.

Table 6 The scales of the test groups and control groups at 24 h and 48 h after challenging

Animal Number	Body Weight (g)	Hours Following Patch Removal	
		24 h	48h
Test (Polar extracts)			
1#	359	0	0
2#	381	0	0
3#	384	0	0
4#	369	0	0
5#	367	0	0
6#	366	0	0
7#	380	0	0
8#	371	0	0
9#	377	0	0
10#	376	0	0
Test (Non - polar extracts)			
1#	367	0	0
2#	366	0	0
3#	369	0	0
4#	376	0	0
5#	377	0	0
6#	381	0	0
7#	384	0	0
8#	381	0	0
9#	395	0	0
10#	390	0	0

Animal Number	Body Weight (g)	Hours Following Patch Removal	
		24 h	48h
Negative control (0.9% physiological saline)			
1#	359	0	0
2#	371	0	0
3#	394	0	0
4#	378	0	0
5#	389	0	0
Negative control (cottonseed oil)			
1#	386	0	0
2#	374	0	0
3#	393	0	0
4#	372	0	0
5#	367	0	0
Positive control: 0.1% DNCB (Positive Validation Reference Date: 2016.06.30)			
1#	375	2	2
2#	363	2	2
3#	348	3	3
4#	359	2	3
5#	377	1	1

CONCLUSION

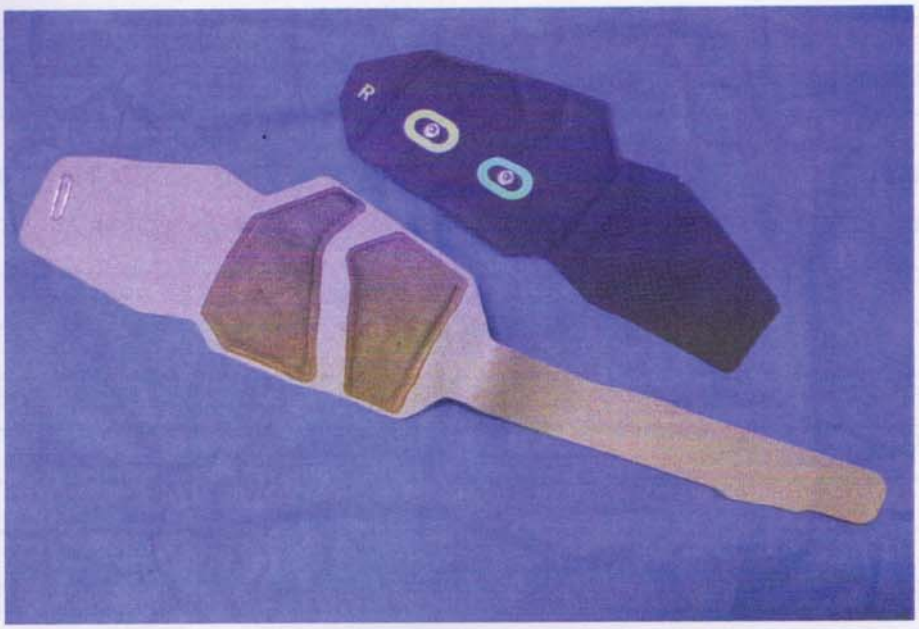
Under the conditions of this study, the 0.9% physiological saline or cottonseed oil test article extracts showed no evidence of causing delayed dermal sensitization in the guinea pig. The skin sensitization test result of the test sample met the requirements of ISO 10993-10:2010 Biological evaluation of medical devices – Part 10: Tests for irritation and skin sensitization. All procedures have been performed according to standard operating procedures and standard protocols.

Results and conclusions apply only to the test articles tested. No further evaluation of these results is made by. Any extrapolation of these data to other samples is the responsibility of the sponsor.

RECORD STORAGE

All raw data pertaining to this study and a copy of the final report are to be retained in designated archive files in our center.

Photos and Explanations



Samples' Descriptions

Quick-fit electrode

国家食品药品监督管理局 广州医疗器械质量监督检验中心 检验专用章

Types and Specifications or Other Explanations

Model / Type: XFT-2001D-DJP

STATEMENT

Guangzhou Medical Devices Quality Surveillance and Test Institute is a third-party inspection and test institution as an independent legal entity in full responsibility. The institution also serves as Guangzhou center of China Food and Drug Administration for the surveillance and inspection of medical devices quality, the inspection and test center of Guangdong Food and Drug Administration for packaging material and container, while being authorized by the government as Guangdong station for quality surveillance and inspection of drug packaging material and products as well as Guangdong station for quality surveillance and inspection of medical devices. The aforementioned "two centers and two stations" are under the same administration of Guangzhou Medical Devices Quality Surveillance and Test Institute, sharing the same leadership, organizational structure, personnel, and laboratory equipments, providing responsible data in the form of test reports for the public under the commission from authorities and clients.