



CONSORTIUM FOR GLOBALIZATION OF CHINESE MEDICINE

中药全球化联盟



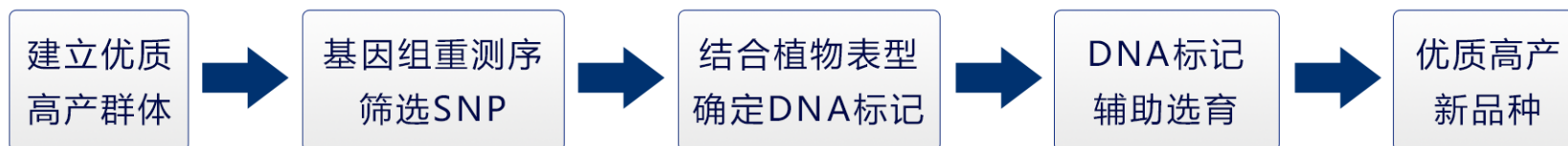
Beijing  
北京



Beijing	
1	Beijing Cancer Hospital & Institute
2	Beijing Technology and Business University
3	Beijing University of Chinese Medicine
4	China Academy of Chinese Medical Science
5	China-Japan Friendship Hospital
6	Chinese Academy of Medical Sciences & Peking Union Medical College
7	Institute of Microbiology, CAS (IM-CAS)
8	National Engineering Research Center for Crop Molecular Design (NCCMD)
9	Peking University
10	PLA Institute of Chinese Materia Medica
11	Tsinghua University

# Molecular Assisted Breeding System for TCM Herbs

## ● 基因组辅助紫苏新品种选育流程



## ● 紫苏全基因组重测序建立特异的SNP标记分子指纹图谱

	Unique SNPs	coding SNPs	nsSNPs	homozygous snSNPs
中研肥苏1号	1367	50	30	13
中研油苏1号	1140	47	32	10

贵州 云南 湖南 四川等地品种示范及推广1.03万亩

中研肥苏1号 丰产 高抗 紫苏叶产量亩产增产210%

中研油苏2号 高油 丰产 含油量高达45% 比普通紫苏高30%



第1完成人 京品鉴药2016054

## 紫苏全基因组辅助获得增产2倍 高油新品种

# The First *Panax* Anti-disease Variety based on Marker-assisted Selection

## DNA标记辅助三七抗病品种选育流程



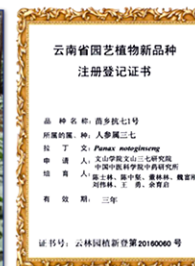
## 筛选并确定抗病群体特异SNP位点辅助系统选育

	665486	509355	519688	497540	307837	519888	153548	435169	433930	440571	440632	443525
抗病品种	AT	AG	CC	AG	AG	CG	CC	AC	TT	AG	AC	TT

### 经过4代选育 缩短育种年限



### 首个三七抗病新品种及良种（苗乡1号）

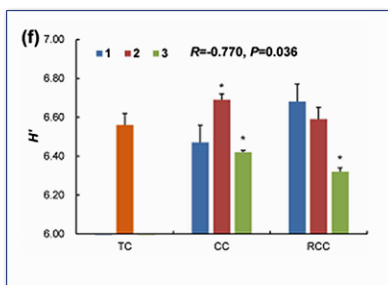


第1完成人

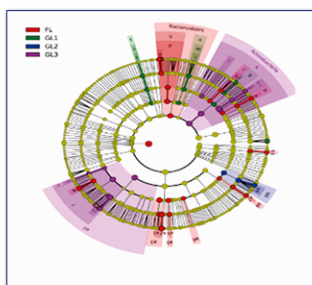
# Pollution-Free Sanchi Cultivation

## 三七持续种植复合技术

- 土壤宏基因组揭示根际微生态失衡机制

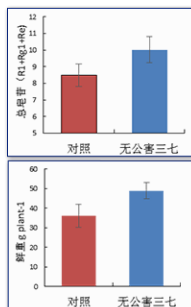


多样性下降



结构失衡

- 抗病品种 + 土壤修复 + 绿肥回田 + 菌剂调控



云南文山科技产业园 陈士林三七工作站

## 建立无公害生产基地14,534亩

- 良种繁育基地累计1140亩



面积320亩  
根腐病发生率下降69%

面积420亩  
一级、二级苗比例达到86%  
种苗锈腐病发生率下降47%

面积400亩  
一级、二级苗比例达到84%  
种苗锈腐病发生率下降43%

## 优质三七药材 助力产业升级

- 首个无公害三七质量标准

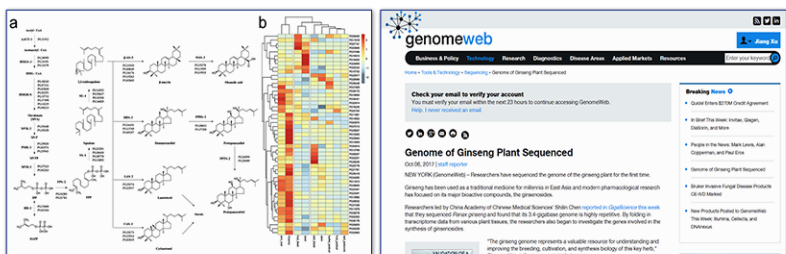




# Release the Genome of *Panax ginseng*

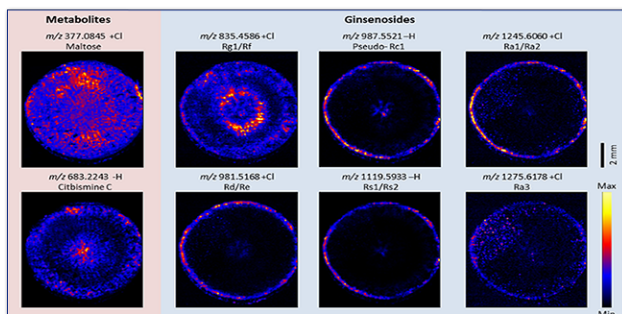
## 人参伐林栽参面临不可持续困境

### 全基因组解析皂苷合成途径



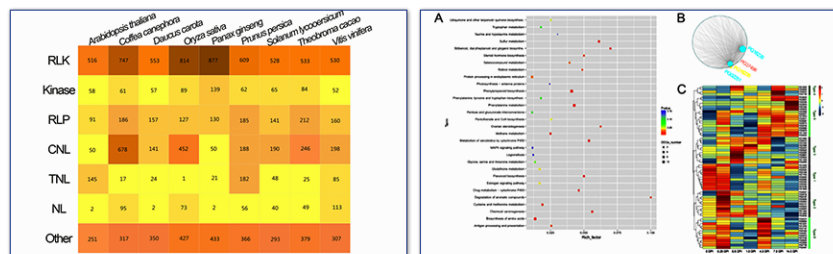
Genome web (美国): 首次完成人参植物基因组

### 质谱成像定位不同构型人参皂苷



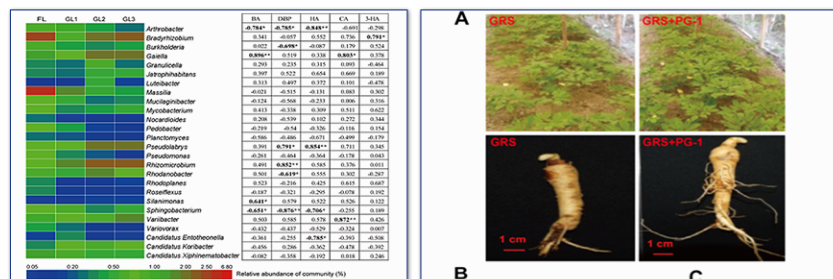
## 农田精细栽培基础薄弱

### 鉴定人参病害响应基因



共鉴定1652个抗病基因 开发病害检测分子标记

### 宏基因组揭示种植过程中人参土壤微生物环境变化



益生菌减少 致病菌积累 回接益生菌使人参死苗率下降40%

Plant Cell Reports 2011; Molecules 2017; Gigascience 2017

# Pollution-free Ginseng Cultivation in Cropland Field

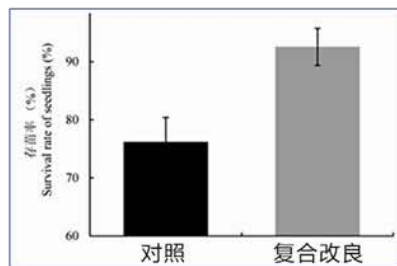
## ● 建立优质高产人参农田精细栽培SOP

### ● 土壤复合改良



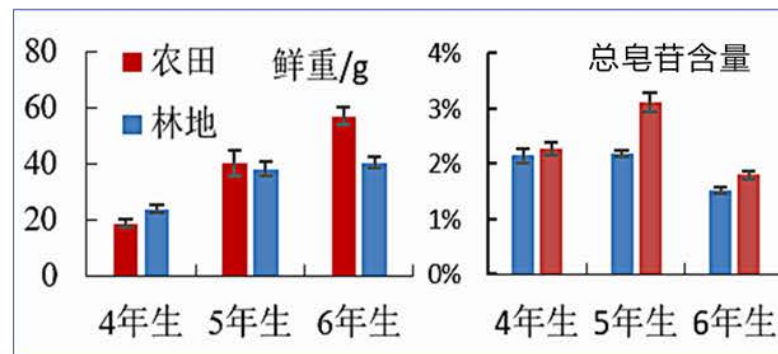
优选土壤消毒剂 (SDML)、绿肥、菌剂, 改良技术高效无公害

### ● 优化人参施肥追肥



人参存苗率提高超过20%

## ● 农田人参优质高产



## ● 中国规模化规范化精细农田栽参试验基地



建立核心示范基地1000亩 推广3000亩



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# China-Japan Friendship Hospital



## China-Japan Friendship Hospital

- ◆ The largest modern hospitals characterized by integration of Chinese medicine and western medicine in China
- ◆ Established through the cooperation of the Chinese and Japanese governments in 1984
- ◆ Covers 9.7 hectares, total of 1,500 beds and 58 departments

## Institute of Clinical Medical Sciences

- ◆ Established in 1985 by approval of Ministry of Health
- ◆ Area of over 6000 square meters and 54 scientific research staff
- ◆ Central laboratory and four research departments





# China-Japan Friendship Hospital



## Prof. Ping Li' team

- ◆ Area: Clinical and basic research about traditional Chinese Medicine for diabetic nephropathy
- ◆ Achievement:
  - Verified clinical efficacy of TCM for DN with macroalbuminuria
  - Developed a Chinese herb medicine(Tangshen Formula) for DN and clarified its molecular mechanism.

- ◆ Beijing Key Lab Immune-Mediated Inflammatory Diseases
- ◆ Key Research Lab of SATCM (Therapeutic evaluation for kidney disease)
- ◆ Third level Lab of SATCM(Pharmacology of Chinese Materia Medica for kidney disease)



# China-Japan Friendship Hospital



## AWARDS

- ◆ Second Prize of the State Science and Technology Progress (2016)
- ◆ First Prize of Science and Technology Award, China Association of Chinese Medicine(2015)

- ◆ The Funds for International Cooperation and Exchange of NSFC(2017)
- ◆ The Youth Project of NSFC (2017)
- ◆ National Science and Technology Major Project (2017)



## GRANTS

## Publications

- Wen Y, Yan M, Zhang B *et al.* Nephrology (Carlton). Suppl 4:50-55 (2017).
- Gu Y, Wang Y, Zhang H *et al.* J Zhejiang Univ-Sci B (Biomed & Biotechnol), 18(9):770-777 (2017).
- Jiang Y, Ma L, Han C *et al.* J Diabetes Res (2017).
- Chen P, Zhao J, Zhang H *et al.* Evid Based Complement Alternat Med. 2017:4064156 (2017).
- Zhang H, Zhao T, Li Z *et al.* J Diabetes Res. 2017:8391253 (2017).
- Zhao H, Li X, Zhao T *et al.* PLoS One. 12(2):e0171475 (2017).
- Zhang H, Wang H, Yan M *et al.* Immunotherapy 8(9), 1045-1057 (2016).
- Yang X, Zhang B, Lu X *et al.* BMC complementary and alternative medicine 16 246 (2016).
- Yan M, Wen Y, Yang L *et al.* Trials 17(1), 259 (2016).
- Yang L, Sun X, Zhan Y *et al.* Experimental and therapeutic medicine 11(4), 1410-1416 (2016).
- Wang H, Zhang H, Chen X *et al.* International journal of molecular medicine 37(5), 1290-1298 (2016).
- Zhao T, Sun S, Zhang H *et al.* PloS one 11(1), e0147693 (2016).

# Protective Effects of Tangshen Formular on Renal Function and Lipid Metabolism

随机双盲，安慰剂平行对照，多中心临床研究

Random double blind, placebo parallel control, multicenter clinical trial

Registration No ChiCTR-TRC-10000843 ; ChiCTR-TRC-13003566

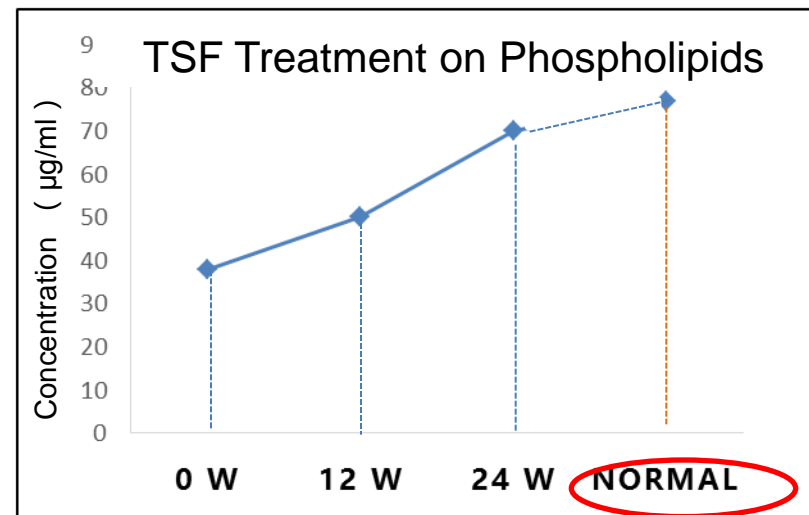
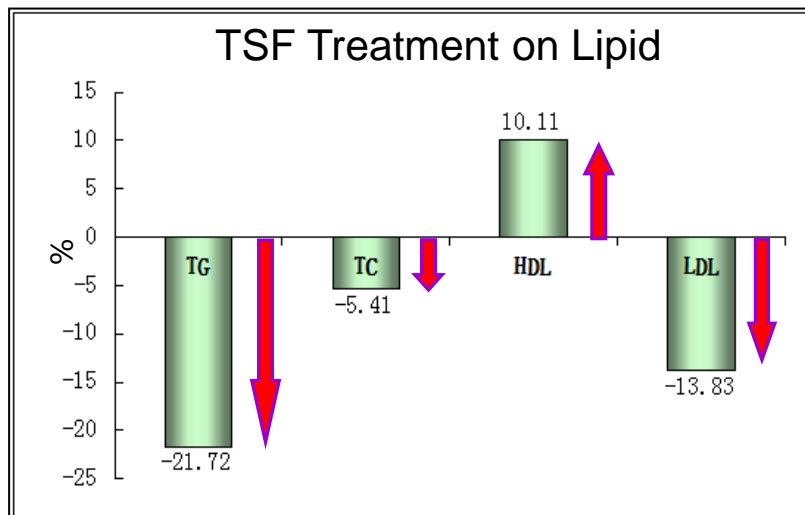
Number of cases 324 (180+144)

TSF group ACEI/ARB+TSF , twice/d

Placebo group ACEI/ARB+placebo , twice/d

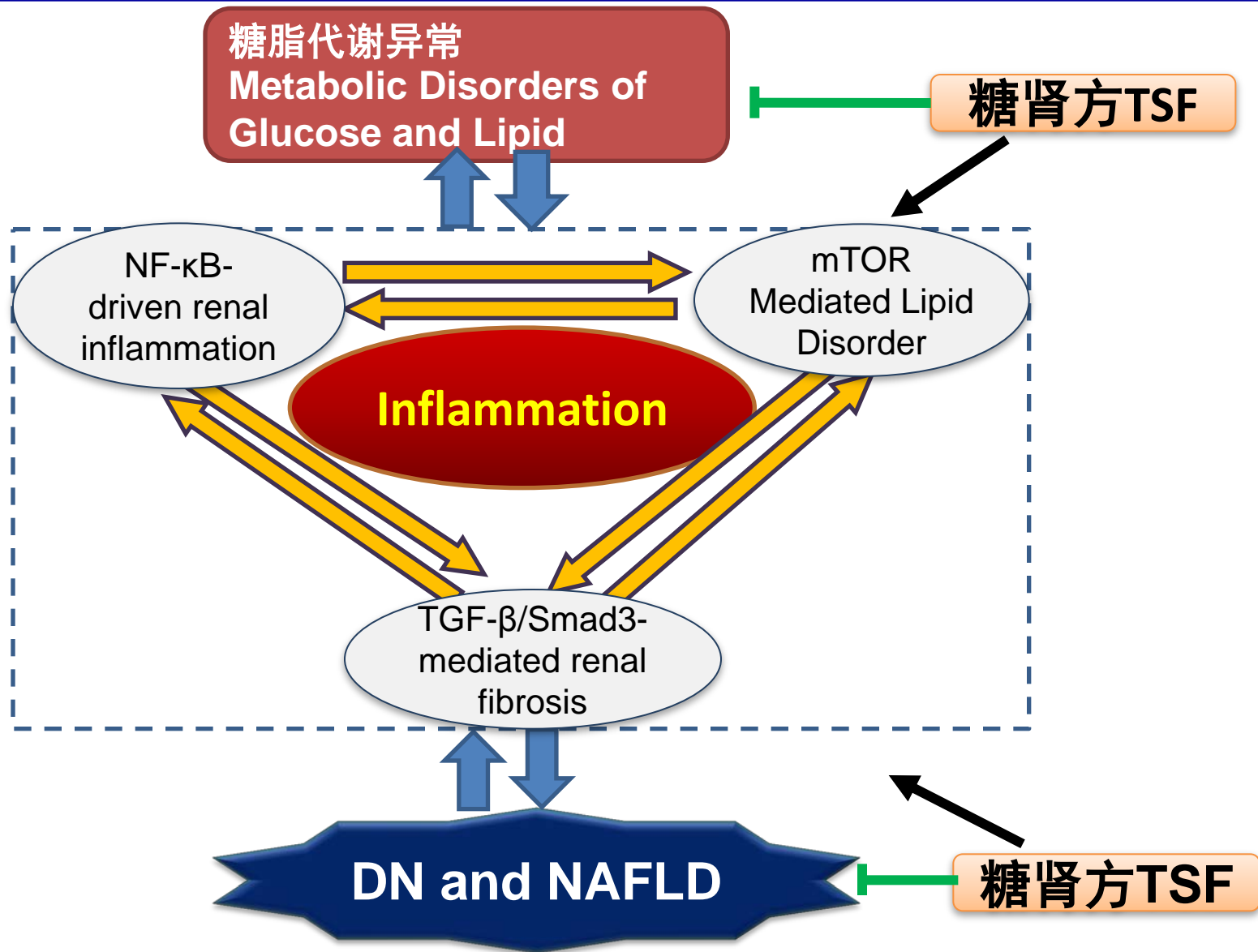
Intervention period 24 weeks

## 2、改善脂代谢紊乱 Improving Lipid Metabolism Disorder



# 糖肾方治疗糖尿病肾病及非酒精性脂肪肝作用机制

## Schematic Diagram of TSF Action in DN and NAFLD







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**THANK YOU !**

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