Article:

DOI: 10.1371/journal.pbio.2005850
Impact Factor: 9.163

Summary:

Host soluble mediators such as cytokines play a key role in the regulation of the immune response. Forkhead box P3 (Foxp3+) regulatory T (Treg) cells, which are involved in maintaining self-tolerance and immune system homeostasis, are influenced by cytokines, including interleukin-4 (IL-4). However, opposing reports have emerged on the effect of this cytokine on Treg cells. Some evidence suggests IL-4 inhibits Treg cells, whereas other studies indicate a supportive role for this cytokine in Treg cell biology and function. To unambiguously address this question, we generated mice with IL-4 receptor specifically removed from the Treg cell population. Our newly generated mice did not show any sign of spontaneous inflammation during homeostasis, but when challenged with an experimental infection by parasitic worms, deletion of the IL-4 receptor from the Treg cell population led to increased inflammation and aggravated tissue pathology. Several defects such as poor activation, reduced promigratory marker expression, and reduced survival were apparent in Treg cells with impaired IL-4 responsiveness. Our evidence presents a strong case for a supportive role of IL-4 via IL-4 receptor in the biology and optimal regulatory function of Treg cells during worm infections.
Article:

DOI: 10.3389/fimmu.2018.02295
Impact Factor: 5.511

Summary:

Background and Methods: Schistosomiasis is debilitating and reported to impair immune responsiveness of infected hosts. In Cameroon, Mass Drug Administration (MDA) is used in schoolchildren to reduce transmission of S. haematobium and S. mansoni. The effects of MDA and the impact of schistosomiasis on the titers of antibodies in vaccinated children have been poorly studied. We therefore assessed the prevalence of schistosomiasis in schoolchildren, eight months after MDA, in two locations: Barombi Koto (BK), endemic for S. haematobium (N = 169) and Yoro (Y), endemic for S. mansoni (N = 356). Age, gender, residence time and frequency of contact with river water were assessed as risk factors for infection and morbidity in both localities. In 70 schoolchildren from BK and 83 from Y, ultrasound was used to assess morbidity according to the WHO guidelines. Evaluation of measles antibodies was performed in previously vaccinated schoolchildren (14 with S. haematobium and 12 egg-negative controls from BK and 47 with S. mansoni and 12 egg-negative controls from Y).

Principal Findings and conclusions: The prevalence of S. haematobium was 25.4% in BK (43/169) and 34.8% for S. mansoni in Y (124/356), indicating the persistent transmission of schistosomiasis despite MDA. Older age (AOR 1.31; 95%CI 1.12-1.54) and higher frequencies of exposure to river water (AOR 1.99; 95%CI 1.03-3.86) were identified as risks for infection in BK whereas only older age (OR 1.15; 95%CI 1.04-1.27) was a risk for infection in Y. Bladder pathology (score 2 to 5) was observed in 29.2% (7/24) of egg-positive children in BK and liver pathology (pattern C) in 31.1% (19/61) of egg-positive children in Y. There was a positive correlation between S. haematobium egg burden and bladder pathology (AOR 1.01; 95% CI 0.99-1.02) and positive correlation between S. mansoni-driven liver pathology and female gender (AOR 3.01; 95% CI 0.88-10.26). Anti-measles antibodies in vaccinated children were significantly lower in S. mansoni-infected when compared to egg-negative controls (p = 0.001), which was not observed in the S. haematobium-infected group from BK. Our results demonstrate a questionable efficacy of MDA alone in halting schistosomiasis transmission and confirm a possible immunomodulatory effect of S. mansoni on response to vaccines.
Summary:

Introduction: Adolescent girls and young women (AGYW) in South Africa bear a disproportionate burden of HIV. Community mobilization (CM), defined as community members taking collective action to achieve a common goal related to health, equity and rights, has been associated with increased HIV testing and condom use and has been called a 'critical enabler' for addressing the HIV epidemic. However, limited research has examined whether CM is associated with HIV incidence among AGYW.

Methods: We examine the association of CM with incident HIV among AGYW (ages 13 to 21) enrolled in the HPTN 068 cohort in the Agincourt Health and socio-Demographic Surveillance System, South Africa. This analysis includes 2292 participants residing in 26 villages where cross-sectional, population-based surveys were conducted to measure CM among 18- to 35-year-old residents in 2012 and 2014. HPTN 068 participants completed up to five annual visits that included an HIV test (2011 to 2016). Household-level data were collected from AGYW parents/guardians and census data is updated annually. Mean village-level CM scores were created using a validated community mobilization measure with seven components (social cohesion, social control, critical consciousness, shared concerns, organizations and networks, leadership and collective action). We used pooled generalized estimating equation regression with a Poisson distribution to estimate risk ratios (RR) for the association of village-level CM score and CM components with incident HIV infection, accounting for village-level clustering and adjusting for key covariates.

Results: There were 194 incident infections over the follow-up period. For every additional standard deviation of village-level CM there was 12% lower HIV incidence (RR: 0.88, 95% CI: 0.79, 0.98) after adjusting for individual, household and community characteristics. CM components associated with lower HIV incidence included critical consciousness (RR: 0.88; CI: 0.79, 0.97) and leadership (RR: 0.87; CI: 0.79, 0.95); while not statistically significant, social cohesion (RR: 0.91; CI: 0.81, 1.01), shared concerns (RR: 0.90; CI: 0.81, 1.00), and organizations and networks (RR: 0.91; CI: 0.79, 1.03) may also play a protective role.

Conclusions: These results suggest that having strong community social resources will reduce AGYW's risk of HIV acquisition. Work to mobilize communities, focusing on building social cohesion, shared concerns, critical consciousness, and effective and accountable leadership, can fortify prevention programming for AGYW.
Article:
DOI: 10.1016/j.phrs.2018.10.004
Impact Factor: 4.897

Summary:
Accumulative evidence shows that chronic hyperglycaemia is a major factor implicated in the development of pancreatic β-cell dysfunction in diabetic patients. Furthermore, most of these patients display impaired insulin signalling that is responsible for accelerated pancreatic β-cell damage. Indeed, prominent pathways involved in glucose metabolism such as phosphatidylinositol 3-kinase/ protein kinase B (PI3-K/AKT) and 5' AMP-activated protein kinase (AMPK) are impaired in an insulin resistant state. The impairment of this pathway is associated with over production of reactive oxygen species and pro-inflammatory factors that supersede pancreatic β-cell damage. Although several antidiabetic drugs can improve β-cell function by modulating key regulators such as PI3-K/AKT and AMPK, evidence of their β-cell regenerative and protective effect is scanty. As a result, there has been continued exploration of novel antidiabetic therapeutics with abundant antioxidant and anti-inflammatory properties that are essential in protecting against β-cell damage. Such therapies include triterpenes, which have displayed robust effects to improve glycaemic tolerance, insulin secretion, and pancreatic β-cell function. This review summarises most relevant effects of various triterpenes on improving pancreatic β-cell function in both in vitro and in vivo experimental models. A special focus falls on studies reporting on the ameliorative properties of these compounds against insulin resistance, oxidative stress and inflammation, the well-known factors involved in hyperglycaemia associated tissue damage.
Summary:
In this report, three biosynthesized silver nanoparticles (AgNPs) obtained from the reduction of silver nitrate (AgNO3) by the aqueous crude extracts of aerial parts of Callistemon citrinus plant were characterized by means of ultraviolet–visible spectroscopy (UV–vis), X-ray diffraction (XRD), scanning electron microscopy (SEM), energy dispersive X-ray (EDX), transmission electron microscopy (TEM) and Fourier transformed infrared (FTIR).

The XRD revealed that the AgNPs were crystalline in nature while the TEM showed that the shapes were spherical with an average size of 29 nm. The SEM and EDX demonstrated triangular shaped materials and that the AgNPs were made up of silver and oxygen only, absorption spectra confirm by UV–vis signifies the dispersed nature of the synthesized nanoparticles with absorption band observed at 280 nm for the leaf. FTIR had absorption bands at about 1700 cm⁻¹ in all spectra's establishing the CO stretching owing to amide bond, another remarkable peak at 3400 cm⁻¹ was seen in the crude extract which was ascribed to the OH stretching from water as a result of the aqueous nature of the plant extracts used. It is interesting to know that this peak was not seen in the AgNPs demonstrating the development of calcined AgNPs, in addition to this, peak at 420 cm⁻¹ was observed for all the three nanoparticles synthesized and this shows the successfully synthesis of the AgNPs. The antimicrobial activities of the of the AgNPs was also confirm via both gram positive and gram negative bacteria strains with a very significant inhibitory action, MIC values of 7.8125 mg/mL were documented for all the silver nanoparticles. Potent antiplasmodial activities with IC50 ranging from 2.99–5.34 μg/mL were also recorded and a poor IC50 of 107.30 μg/mL for antitrypanosoma activity of the leaf AgNPs was also documented.
1. **INTRAMURAL RESEARCH UNITS**  
**Alcohol, Tobacco and Other Drug**

DOI: 10.2147/ppa.s175852  
**Impact Factor: 1.733**

**Biomedical Research and Innovation Platform**

DOI: 10.1186/s13643-018-0835-1  
**Impact Factor: None**

**Impact Factor: None**

DOI: 10.1016/j.phrs.2018.10.004  
**Impact Factor: 4.897**

DOI: 10.1186/s12906-018-2337-z  
**Impact Factor: 2.109**

DOI: 10.3390/medicina54050070  
**Impact Factor: 1.429**

**Biostatistics**

DOI: 10.1007/s10278-018-0129-0  
**Impact Factor: 1.536**

**Centre for Tuberculosis**

DOI: 10.4102/jsava.v89i0.1683  
**Impact Factor: 0.930**

Impact Factor: None


Impact Factor: 5.511


Impact Factor: 5.511


Impact Factor: 4.122

Environment and Health


Impact Factor: 1.441

Gender and Health


Impact Factor: 2.766


Impact Factor: 2.766


Impact Factor: 2.766

**Impact Factor: None**


**Impact Factor: 1.906**


**Impact Factor: 4.098**


**Impact Factor: 0.810**

**Health Systems**


**Impact Factor: 2.163**


**Impact Factor: 1.089**


**Impact Factor: None**


**Impact Factor: 2.413**

Impact Factor: None


Impact Factor: None


Impact Factor: None


Impact Factor: None

**HIV Prevention**


Impact Factor: None


Impact Factor: 9.117


Impact Factor: 4.914


Impact Factor: 1.935
Non-Communicable Disease

   DOI: 10.1186/s12881-018-0702-x
   **Impact Factor: 1.913**

   DOI: 10.1136/bmjgh-2018-000866
   **Impact Factor: None**

   DOI: 10.1186/s12944-018-0879-1
   **Impact Factor: 2.663**

   DOI: 10.5114/aoms.2018.79001
   **Impact Factor: 2.344**

5. Rae DE, Pienaar PR, Henst RHP, Roden LC, **Goedecke JH**. Associations between long self-reported sleep, obesity and insulin resistance in a cohort of premenopausal black and white South African women. Sleep Health: Journal of the National Sleep Foundation. 2018 Oct 03. [Original]
   DOI: 10.1016/j.sleh.2018.08.005
   **Impact Factor: None**

   DOI: 10.1371/journal.pone.0206408
   **Impact Factor: 2.766**

   DOI: 10.5830/cvja-2018-033
   **Impact Factor: 1.128**

   DOI: 10.1017/s0007114518002581
   **Impact Factor: 3.657**
Office of AIDS Research

   DOI: 10.1016/j.tube.2018.09.009
   Impact Factor: 2.727

   DOI: 10.1002/jia2.25198
   Impact Factor: 5.135

   DOI: 10.1186/s12879-018-3380-6
   Impact Factor: 2.620

   DOI: 10.1016/s2352-3018(18)30178-4
   Impact Factor: 11.355

   DOI: 10.1016/s1473-3099(18)30428-6
   Impact Factor: 25.148

South African Cochrane Centre

   DOI: 10.1136/bmjopen-2018-022949
   Impact Factor: 2.413

   Impact Factor: 2.163

   DOI: 10.1017/gmh.2018.22
   Impact Factor: None
Impact Factor: None

Violence, Injury and Peace
Impact Factor: None

DOI: 10.1080/17457300.2018.1526365  
Impact Factor: 0.955
2. **EXTRAMURAL RESEARCH UNITS**

**Bioinformatics Capacities Development**

   DOI: 10.3390/v10100542
   **Impact Factor: 3.761**

   DOI: 10.1371/journal.pone.0205860
   **Impact Factor: 2.766**

**Child and Adolescent Lung Health**

   DOI: 10.1080/09540121.2018.1533233
   **Impact Factor: 1.994**

   DOI: 10.1186/s13601-018-0227-6 [Review]
   **Impact Factor: 3.539**

   **Impact Factor: 2.354**

   DOI: 10.1038/s41598-018-33499-4
   **Impact Factor: 4.122**
**Developmental Pathways for Health**

   DOI: 10.1038/s41366-018-0216-9  
   Impact Factor: 5.159

   DOI: 10.1080/16549716.2018.1527557  
   Impact Factor: 1.906

   DOI: 10.12688/gatesopenres.12869.1 [Review]  
   Impact Factor: None

   DOI: 10.7196/SAMJ.2018.v108i10.13175  
   Impact Factor: 2.163

**Drug Discovery and Development**

   DOI: 10.1186/s12909-018-1331-y  
   Impact Factor: 1.511

**Gynaecological Cancer**

   Impact Factor: 2.163

   DOI: 10.1002/ijgo.12610  
   Impact Factor: 2.072
**Impact Factor: 2.072**

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**HIV/TB Pathogenesis and Treatment**

**Impact Factor: 12.244**

**Impact Factor: 1.935**

**Hypertension and Cardiovascular Disease**

**Impact Factor: 3.086**

**Immunology of Infectious Disease**

**Impact Factor: 9.163**

**Impact Factor: 12.353**
**Impact Factor:** 5.511

**Microbial Water Quality Monitoring**

**Impact Factor:** None

**Impact Factor:** 3.909

**Impact Factor:** 2.682

**Impact Factor:** 1.440

**Impact Factor:** 4.005

**Impact Factor:** 1.689

**Impact Factor:** 4.513

**Impact Factor:** 0.783

Molecular Mycobacteriology

Respiratory and Meningeal Pathogens

Risk and Resilience in Mental Disorders


DOI: 10.1177/1077801218802640
**Impact Factor: 1.588**

DOI: 10.2967/jnumed.18.212795
**Impact Factor: 7.439**

DOI: 10.1177/1363461518799510
**Impact Factor: 1.500**

**Rural Public Health and Health Transition**

**Impact Factor: 6.361**

DOI: 10.1111/mcn.12736 [Original]
**Impact Factor: 3.233**

DOI: 10.1111/jgs.15567
**Impact Factor: 4.155**

DOI: 10.1007/s10654-018-0453-1
**Impact Factor: 7.023**

DOI: 10.1002/jia2.25182
**Impact Factor: 5.135**
3. **GRANT FUNDED RESEARCH**

   DOI: 10.1183/13993003.01528-2018
   **Impact Factor: 12.244**

   DOI: 10.1164/rccm.201806-1053PP
   **Impact Factor: 15.239**

   DOI: 10.1200/jgo.18.00105 [Original]  
   **Impact Factor: None**

   DOI: 10.1016/j.shaw.2018.10.001
   **Impact Factor: None**

   DOI: 10.7196/SAMJ. 2018.v108i11.13095
   **Impact Factor: 2.163**

   DOI: 10.1038/s41467-018-06794-x
   **Impact Factor: 12.353**

   DOI: 10.3389/fmicb.2018.02603
   **Impact Factor: 4.019**

   DOI: 10.1016/j.ijid.2018.09.024
   **Impact Factor: 3.202**
   DOI: 10.7196/SAMJ.2018.v108i11.13227
   **Impact Factor: 2.163**

    DOI: 10.1186/s12889-018-6104-3
    **Impact Factor: 2.420**

    DOI: 10.7196/SAMJ.2018.v108i10.13508
    **Impact Factor: 2.163**

    DOI: 10.3389/fmicb.2018.02521
    **Impact Factor: 4.019**

    DOI: 10.1128/mBio.01276-18
    **Impact Factor: 6.689**

    DOI: 10.4102/sajpsychiatry.v24i0.1300
    **Impact Factor: 0.356**
4. RESEARCH UNITS WITH NO QUALIFYING PUBLICATIONS

Intramural
- Burden of Disease
- Office of Cancer Research
- Office of Malaria Research
- Office of Tuberculosis Research
- Primate

Extramural
- Antiviral Gene Therapy
- Centre for Antimicrobial Resistance
- Common Epithelial Cancer
- Health Services to Systems
- Herbal Drugs
- Maternal and Infant Health Care Strategies
- Precision and Genomic Medicine
- Prospective Gastrointestinal Cancer
- Stem Cell Research and Therapy

Research Centre
- Advancing Care and Treatment (ACT) For TB/HIV
- Centre for Basic and Translational Human TB Research
- Centre for Multi-Disciplinary Research on Malaria
- Centre for Optimising Antimalarial Therapy in South Africa
- Centre for Sustainable Malaria Control
- Centre for Tuberculosis Biomarker-Targeted Intervention
- Clinical and Community HIV-Tuberculosis Research
- Soweto Matlosana SAMRC Collaborating Centre for HIV/AIDS and TB
- TB Free through Research and Innovation
- Tuberculosis Collaborating Centre for Child Health (TB-CHILD)
- Tygerberg SAMRC Collaborating centre for HIV Laboratory Research
- Wits Clinical HIV/TB Research Unit, WITS Health Consortium
- Wits RHI Collaborating Centre for HIV/AIDS
### 5. GRANTS AWARDED

#### SAMRC LIST OF NEW CONTRACTS FOR OCTOBER 2018

<table>
<thead>
<tr>
<th>MRC Unit</th>
<th>Funder</th>
<th>Main Funder</th>
<th>Project Title/Description</th>
<th>Contract Value</th>
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<tr>
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<td>Rand</td>
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<tr>
<td>ATODRU</td>
<td>University of California</td>
<td>NIH</td>
<td>UCLA-South Africa Center for Chronic Mental Disorders Subaward Nr 2000 G TC893, Amendment No.3</td>
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<td></td>
<td>MRC-UK</td>
<td>MRC-UK</td>
<td>Expanding mental health counselling from primary care to reach at-risk youth (Expanding MINDS-Y)</td>
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<tr>
<td>GHRU</td>
<td>University of California</td>
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<td>Funded Sexual Violence Research and Intervention Development in Higher Education and Training</td>
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<tr>
<td>HSRU</td>
<td>NRF</td>
<td>NRF</td>
<td>Incentive Funding for Rated Researchers: Tanya Doherty</td>
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<tr>
<td></td>
<td>Brown University</td>
<td>NIH</td>
<td>Our Family Our Future: A resilience-oriented family intervention to prevent adolescent HIV/STI infection and depression in South Africa</td>
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<td>Malaria</td>
<td>Lubombo Spatial Development Initiative</td>
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<td>Vector Susceptibility to Actellic and Sumishield Insecticide Resistance Profile for South Africa</td>
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<td>Primate</td>
<td>NRF</td>
<td>NRF</td>
<td>Competitive Programme for Rated Researchers: Gerald Chege</td>
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<tr>
<td>SHIP</td>
<td>Bill &amp; Melinda Gates Foundation</td>
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<td>New Approach to Characterize the Global Burden of Antimicrobial Resistance through our African partners (Grand Challenges South Africa)</td>
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<tr>
<td>VIPRU</td>
<td>NRF</td>
<td>NRF</td>
<td>Competitive Programme for Rated Researchers: Naiema Taliep</td>
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