Diseases Control and Prevention. The annual number of cases and
the annual incidence were mapped by matching them to
corresponding province- and county-level administrative units in a
geographic information system. The distribution of falciparum
malaria by age, gender and origin of infection was analysed.
Time-series analysis was conducted to investigate the relation-
ship between the falciparum malaria in the endemic provinces
and the imported falciparum malaria in non-endemic provinces.

Results: Falciparum malaria was endemic in two provinces of
China during 2004-05. Imported malaria was reported in 26
non-endemic provinces. Annual incidence of falciparum malaria
was mapped at county level in the two endemic provinces of
China: Yunnan and Hainan. The sex ratio (male vs. female) for
the number of cases in Yunnan was 1.6 in the children of 0-15
years and it reached 5.7 in the adults over 15 years of age. The
number of malaria cases in Yunnan was positively correlated with
the number of cases in Yunnan was 1.6 in the children of 0-15
years and it reached 5.7 in the adults over 15 years of age. The
number of malaria cases in Yunnan was positively correlated with
the imported malaria of concurrent months in the non-endemic
provinces.

Conclusion: The endemic area of falciparum malaria in China has
remained restricted to two provinces, Yunnan and Hainan. Stable
transmission occurs in the bordering region of Yunnan and the
hilly-forested south of Hainan. The age and gender distribution in
the endemic area is characterized by the predominance of adult
men cases. Imported falciparum malaria in the non-endemic
area of China, affected mainly by the malaria transmission in
Yunnan, has increased both spatially and temporally. Specific
intervention measures targeted at the mobile population groups are
warranted.

CS6-03 Malaria Programme Cell Death: Pathways and
Perspectives

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Aims: Several recent discoveries of the hallmark features of
programmed cell death (PCD) in Plasmodium falciparum have
presented the possibility of revealing novel targets for anti-
malarial therapy. In this study, we aim to identify drug-induced
PCD pathways and molecular mediators in P. falciparum.

Methods & Results: Using a combination of cell-based assays,
flow cytometry and fluorescence microscopy, we detected
features including mitochondrial dysregulation, activation of
caspase-like proteases and in situ DNA fragmentation in parasites
induced with the antimalarial chloroquine (CQ) and apoptosis
inducer staurosporine (ST). The use of the pan-caspase inhibitor,
z-Val-Ala-Asp-fmk (zVAD), and the mitochondria outer membrane
permeabilization (MOMP) inhibitor, 4-hydroxy-tamoxifen,
enabled the characterization of a novel chloroquine-induced
pathway linking caspase-like protease activation to downstream
mitochondrial dysregulation, amplified protease activity and
dNA fragmentation. The PCD features were observed only at
high (μM) concentrations of CQ. The use of a new synthetic
fluorophore-labeled chloroquine (FP-CQ) showed that these fea-
tures may be due to concentration-dependent differences in drug
localization. By further using cysteine protease inhibitors z-Asp-
Glu-Val-Asp-fmk (zDEVD), z-Phe-Ala-fmk (zFA), z-Phe-Phe-fmk
(zFF), z-Leu-Leu-Asp-fmk (zLLE), E64d and CA-074, we were able
to implicate clan CA cysteine proteases in CQ-mediated PCD.

Conclusions: PCD pathways exist in P. falciparum and are broadly
similar to classical apoptosis pathways of mammalian cells, but
with some distinct differences. Malaria PCD pathways are medi-
atmed by cysteine proteases belonging to clan CA instead of clan
CD, suggesting that PCD pathways converged in evolution and
that novel parasite-specific PCD mediators may be exploited in
antimalarial strategies.

CS6-04 Identification of a 16 kDa Specific Protein from
Cyst Fluid of Cysticercus and its N-Terminal
Amino Acid Sequencing

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In order to search a molecular biomarker with low molecular
weight for the diagnosis of cysticercosis, cysticercuses from the
muscle of a naturally infected pig were isolated and collected.
Rough antigen was prepared from the cyst fluid of the cysticercus
and used to immunize rabbits. General protein of the cyst fluid
was analyzed by SDS-PAGE. Specific protein was identified with
Western blot method with antiserum obtained from the immunized
rabbits. N-terminal amino acids of the identified protein were
detected and sequenced with Edman degradation. The results
demonstrated that a 16KDa protein with high specificity was
identified from the cyst fluid of cysticercus and 10 amino acids
were detected in its N-terminal and sequenced as DLSKGEWQLY.
It is shown that the 16KDa protein has 80% identity to myoglobin.
It will be useful in the further study on the immunodiagnosis of
cysticercosis.

Concurrent Session 7 – Management of Hepatitis C
Patients

CS7-01 Management of Hepatitis C Patients and
Prevention of HCC

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Natural course of HCV infection: Previous studies including ours
indicate the progression of fibrosis is steady but slow, and was
estimated from 0.5 stages per year (normal-ALT) to 1.3. The efforts
to establish non-invasive measures including Fibroscan helped us
to relate the importance of liver fibrosis or rather “stiffness” of
the liver to the development of HCC in a prospective fashion. To
the end, the slow down of fibrosis progression or even reversal
could obviously anticipated to reduce the incidence of HCC.

Chronic hepatitis: In 1994, we set up a national surveillance pro-
gram for HCC development among chronic hepatitis C patients
and enrolled about 2,900 biopsy-proven cases. 2,400 of them
received interferon treatment, showing a sustained virologic re-
response rate of 33% on average. The risk of HCC was reduced by
half among the interferon-treated patients as a whole, and down
to one-fifth among sustained virologic responders. Even among
the cirrhotic, the incidence of HCC was decreased by long term
follow-up. We also confirmed histologically the resolution of cir-
rhosis following sustained virologic response and the calculated
rate of fibrosis regression rate was 0.28 fibrosis stage per year.
It was also shown that, not only the reduction of HCC incidence,
but also overall mortality including non-liver related death, was
decreased.

Anti-viral for HCC: It could be assumed that the anti-viral could
be only for prevention. However, our data clearly indicated that
the eradication of HCV in patients who already developed HCC
be only for prevention. However, our data clearly indicated that
the eradication of HCV in patients who already developed HCC
were also beneficial to prolong the patients’ life. Now, we are
able to expect 80% 5-year survival rate in the combination of RFA
and the eradication of HCV.

Acknowledgements: This work was generously funded by a grant
from the Life Science Institute, National University of Singapore.