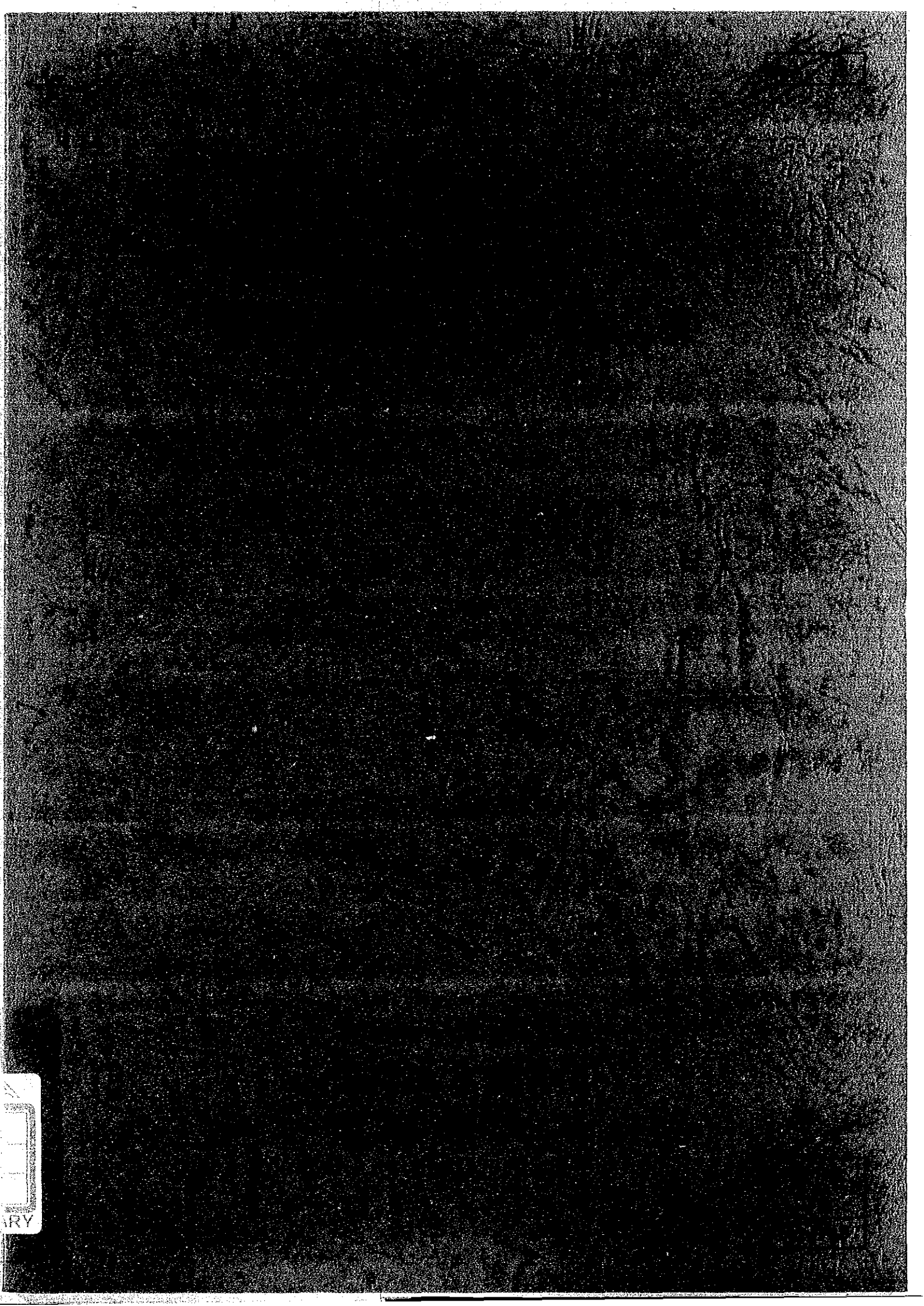


タイ国国立衛生研究所プロジェクト
巡回指導専門家チーム報告書

平成３年２月

国際協力事業団
医療協力部

序　　文

タイ国に流行する各種感染症、胃腸疾患、寄生虫症の対策を講じるために、タイ国政府は我国に対し、上記分野の研究能力の向上、人材養成を目的とし、無償資金協力及び技術協力を要請越した。

これを受けて我国は昭和６０年８月１日から５か年にわたる技術協力を開始し、技術協力の拠点となる国立衛生研究所は昭和６１年末無償資金協力により完成した。

技術協力の５年目の平成元年１２月には評価調査団を派遣し、本プロジェクトについてタイ側と合同で評価を行った。その結果を踏まえ、平成２年７月３１日に同プロジェクトの延長にかかる討議議事録（Ｒ／Ｄ）が署名され、同年８月１日から平成４年７月３１日までの２年間の延長期間に入った。

今般の専門家チームはプロジェクト延長後の技術協力の進捗状況を確認した上で、タイ側への助言を行い、また今後の協力計画をタイ側と協議することを目的に派遣された。

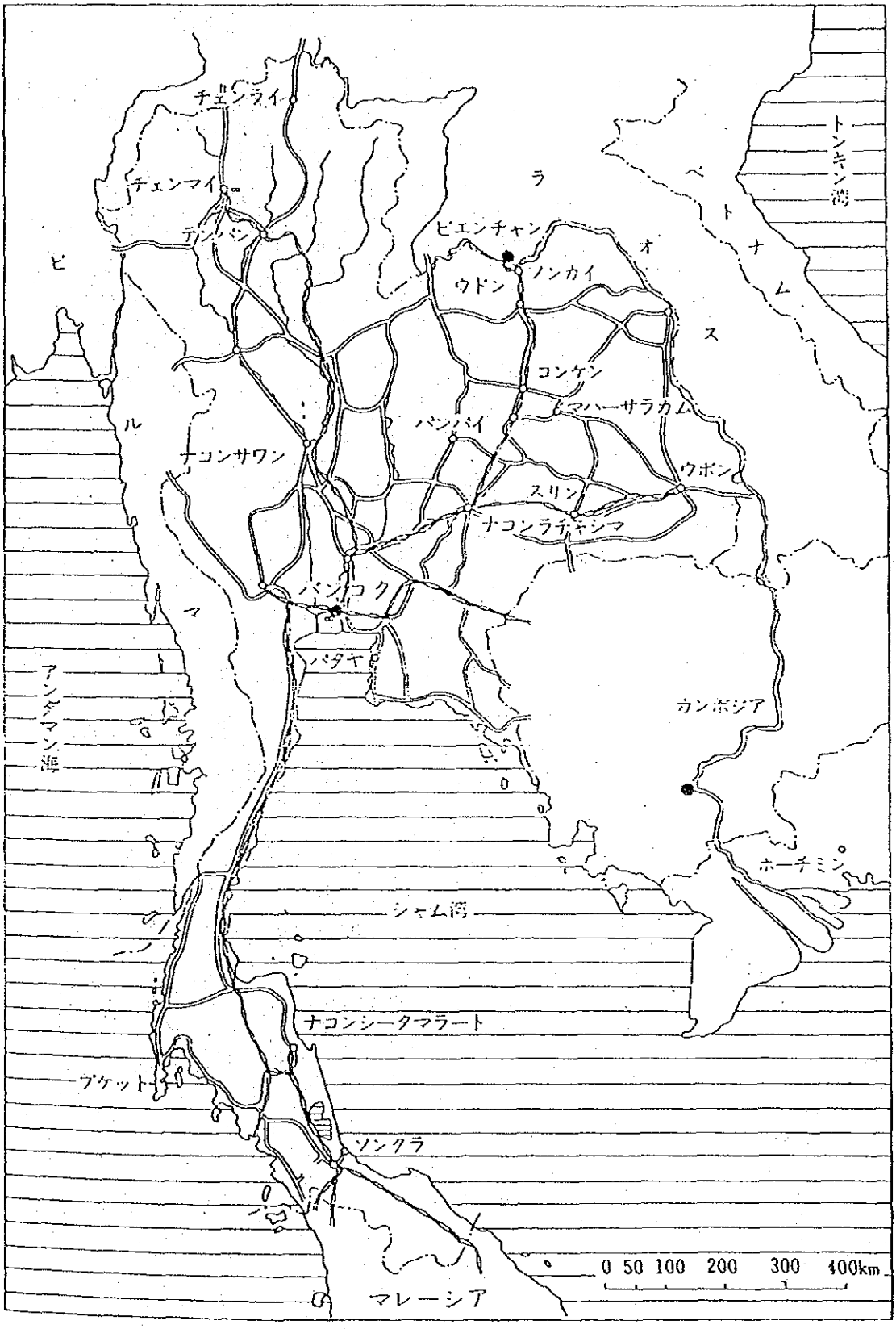
本報告書は、上記専門家チームが実施した調査、協議内容と結果などを取り纏めたものである。

ここに、本件専門家チーム派遣にあたりご協力いただいた関係各位に対し、深甚なる謝意を表すとともに、今後とも本件技術協力の成功のために一層のご協力をお願いする次第である。

平成３年２月

国際協力事業団
医療協力部
部長　曽我　紘一

タ　イ　王　国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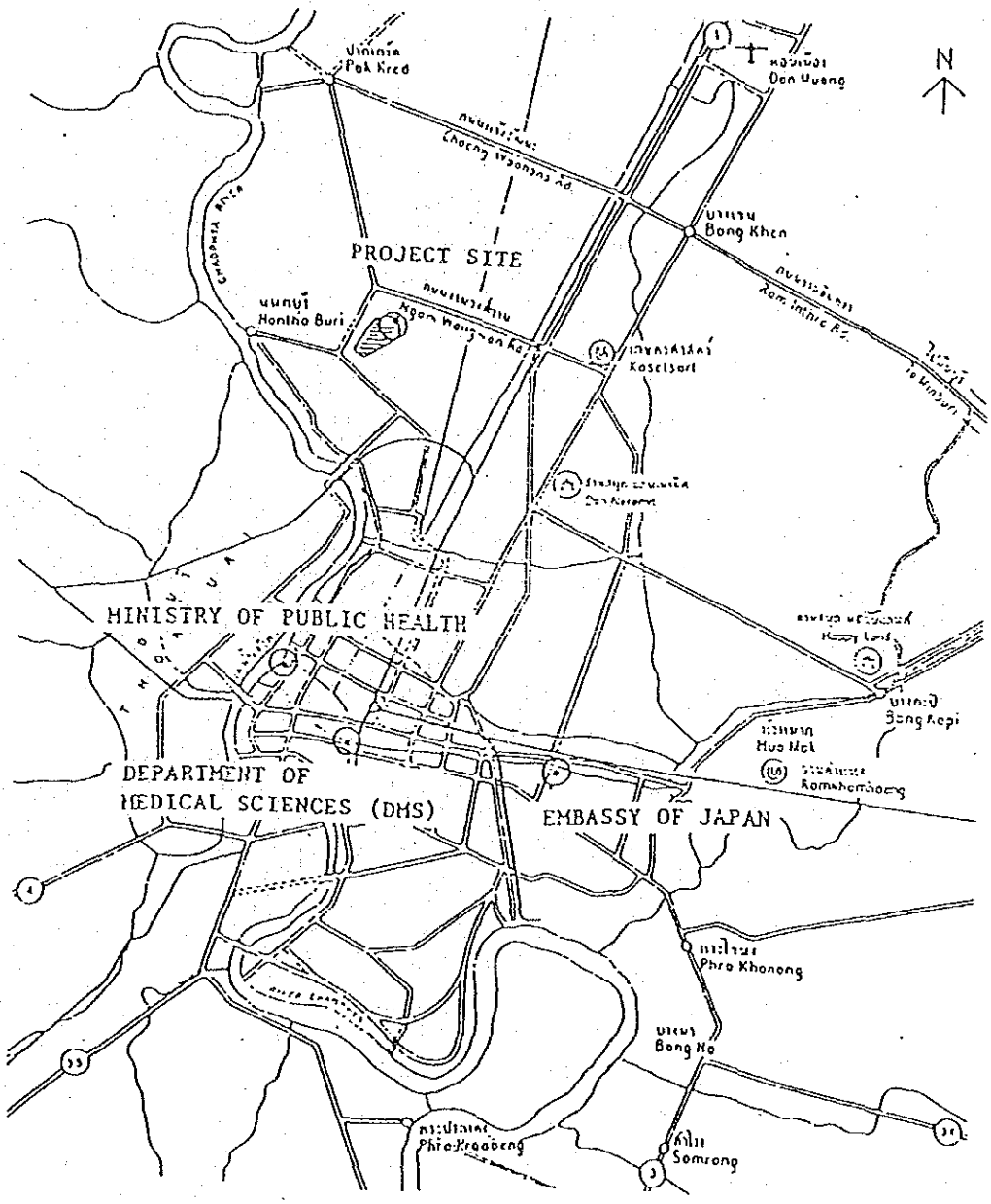
ナコンサワン
ウボン
スリン
ナコンラチャシマ
バンコク
パタヤ
アンダマン海
カンボジア
ホーチミン
シャム湾
ナコンシータマラート
プケット
ソンクラ
0 50 100 200 300 400km
マレーシア

プロジェクトサイト案内地図



目　　次

1. 巡回指導専門家チーム派遣

1－1　巡回指導専門家チーム派遣の経緯と目的

タイ国国立衛生研究所プロジェクト（昭和６０年８月１日～平成２年７月３１日）は、平成元年１２月に派遣された評価調査団による評価結果とタイ国側の要請に基づいて、平成２年７月３１日に延長Ｒ／Ｄが署名され、平成２年８月１日から平成４年７月３１日の２年間のプロジェクト延長期間にはいっている。

今般の専門家チームの派遣目的は、下記のとおり延長初年度のプロジェクトの進捗状況を確認した上でタイ側に助言をし、今後の協力計画について協議することであった。

(1)　サイエンスミーティング（研究発表会）におけるカウンターパートの研究発表を通じ、プロジェクト活動・研究の進捗状況及び現状を把握、評価し助言指導する。

(2)　今後の研究計画についての協議

1－2　調査団の構成

担　当	氏　名	所　属
総括・ウイルス学	山崎　修道	国立予防衛生研究所 ウイルス中央検査部・部長
細　菌　学	渡辺　治雄	国立予防衛生研究所　細菌部・部長
ワクチン学	上田　重晴	大阪大学微生物病研究所防疫学部門・教授
協力計画	橋口　道代	国際協力事業団　医療協力部医療協力課

1－3　調査日程

日順	月　日	曜日	移　動　及　び　業　務
1	12.10	月	移動 １０：３０　ＴＧ６４１東京－バンコク（山崎、渡辺、橋口） １１：００　ＴＧ６２１大阪－バンコク（上田）
2	12.11	火	ＪＩＣＡタイ事務所打ち合わせ 在タイ日本大使館表敬 タイ医科学局（ＤＭＳ）表敬・打ち合わせ タイ公衆衛生省（ＭＯＰＨ）表敬
3	12.12	水	サイエンスミーティング（於　ＮＩＨ）
4	12.13	木	サイエンスミーティング

日順	月　日	曜日	
5	12.14	金	サイエンスミーティング コーディネーティングコミッティー
6	12.15	土	プロジェクトリーダー、調整員との打ち合わせ
7	12.16	日	帰国 09：00　TG622バンコクー大阪（上田） 11：15　TG640バンコクー東京（山崎、渡辺、橋口）

1－4　主要面談者リスト

タイ公衆衛生省（Ministry of Public Health ＝ MOPH）

Dr. Morakot korukasem	Deputy Permanent Secretary

タイ医科学局（Department of Medical Science ＝DMS）

Dr. Nadhirat Sangkawigha	Honorary Consultant
Khunging Preeya Kashemsant	Derector General
Dr. Sompop Ahandrik	Deputy Director General(Director of NIH)
Dr. Boonluan Phanthumachinda	Deputy Director General

在タイ日本大使館

長門　利明	二等書記官

ＪＩＣＡタイ事務所

阿部　信司	所長
宮本　秀夫	所員

2. 要　　約

(1) これまでの派遣専門家による技術指導は、タイ国ＮＩＨの主な研究スタッフの技術面のレベルアップに確実に貢献しており、大きな成果をあげている。しかし、これらの技術は現在のところ個人の特技として評価される段階にあり、今後は技術を如何にＮＩＨの共有の財産として維持、発展させるかという点について考えていく必要がある。それには、スタッフ間の研究交流の促進や、技術講習会の実施などが方法として考えられる。

(2) ＮＩＨスタッフが新しいバイオテクノロジー技術導入に熱心なあまり、技術習得自体が目的になっている傾向がある。習得した技術をどのような研究業務に生かすべきかについて更に考えていく必要がある。これは、研究者自身の課題というより、むしろ研究に対する動機付けの問題でもあり、ＮＩＨの管理職レベルの課題であるといえる。

(3) 研究業務の遂行にあたって、万事日本人専門家に頼る傾向が強い。ＮＩＨの独立的発展のためには、その対応策として、新しい協力方法を考えるべき時期にきている。

(4) 感染症サーベイランスシステムの確立とその強化を目的とした病原体情報システムの開発研究については、現在コンピューターを用いた検査室由来情報処理システムソフトの開発研究が進行中であるが、ソフトそのものの開発よりも、情報収集ネットワークの構築や、検査の精度の確保の方が先決問題であり、これらが整備されて初めてソフトの活用が期待できる。

(5) バンコクにおけるエイズ感染者の急激な増加は、単にタイの問題にとどまらず、アジア諸国全体に及ぼす影響を考えると、その対応はＤＭＳにとって急務である。特にＮＩＨにおいてはエイズ・サーベイランスへの協力、とりわけ実験室診断体制の確立が重要である。

3. プロジェクト実施上の諸問題

3－1　プロジェクトの進捗状況（サイエンスミーティング内容）

タイＮＩＨスタッフによる研究発表会は、１２月１２日と１３日の２日間にわたって開催され、最後に日本人専門家による技術・研究指導報告が行われた。

会議は、別添資料に記載されたプログラムの順序に従って、先ずＮＩＨ新所長Dr. Sompop（Director-General, Deputy, DMS）の開会の挨拶に始まり、以下の各分野について活動状況の説明と研究成果の報告が行われた。

1. Immunology and Virology 座長Chuinrudee Jayavasu

1）Wattana Auwanit－ＨＩＶのＤＮＡ検出

2）Panasda Ayuthaya－Dengue virus のモノクローナル抗体

3）Kruavon Balachandra－抗ウイルス剤評価のための免疫試験法
タイＮＩＨにおけるＨＨＶ－６の研究

4）Sirima Pattamadilok －ハイブリドーマ技術、S. blotハイブリダイゼーション
バンコックにおけるＲＳＶ流行（１９８８－１９８９）

5）Kasama Supanaranond －ＣＡ２４Ｖの分子クローニングと塩基配列の解析

6）Wanpen Boonwanich－　ウイルスゲノムのクローニングの技術

7）Yaowapa Pongsuwanna－ロタウイルスの分子疫学、ゲノムの解析

8）Sanit Panhirun ―― オリゴヌクレオチド・フィンガプリンティング
ＨＨＶ－６モノクロナール抗体産生、電顕技術

9）Pornthip Samuthananon－Rabies virus の抗体精製、標識、モノクロナール抗体作製。
Rables中和抗体のＥＬＩＳＡ測定法の開発研究

10）Chuinrudee Jayavasu－タイ国の急性ウイルス性肝炎の疫学

2. Bacteriology 座長　Retanasuda Phan－urai

1）Orn－anong Ratchtrachenchai－ コロニーハイブリダイゼーションによる
enterotoxigenc E. coli の同定

2）Kurongkaew Suppawat－腸内病原細菌のVirulence factor

3）Aroon Bangtrakulnonth－プラスミド型別によるサルモネラ・サーベイランス

4）Renu Sunthad－vanich－サルモネラのファージ型と薬剤耐性

5）Surang Dejsirilert－　Melioidosisの研究

6）Pimjai Naigowit－　Pseud, pseudomallei のリポポリサッカライド抽出

7）Surang Dejsirlert－　細菌レファレンス・システムの確立

8） Kurongkaew Supawat － 感染症サーベイの実験室情報システム（ＬＯＩＳ）

3. Vaccine, Entomology, Histopathology and Mutagen

座長 Nadhirat Sangkawibha（Boonluanの代理出席）

1） Teeranart Jivapaisarmpong － Acell. Pert. vaccineの開発

2） Prakorb Ruengsairatanarojn －組織培養狂犬病ワクチン生産のパイロット研究

3） Malinee Chittaganpitch － Rubella vaccineの生産

4） Suntaree Rojanasuphot －タイ国製ＪＥワクチンの野外試験

5） Nipa Benjapong ―― 昆虫の分類とレファレンス博物館

6） Monkol Chenchittikul －Rodents 媒介疾患（リケッチャ）

7） Natteewan Poonwan － Mycotic diseasesの診断；免疫蛍光法と組織病理学

8） Nawaporn Anantashinkul － 癌原性試験と化学分析

4. 日本人専門家による報告 座長 Komi Kanai

3－2 問題と対策

3－2－1 ワクチン開発

(1) 無細胞百日咳ワクチンの開発経過（Teeranart Jivapaisarmporhgの報告）

Teeranart J. は菌の培養、培養上清の精製など日本で研修を受けて習得してきた技術を駆使して、無細胞百日咳ワクチンを試作するのに成功したと考える。

ただし、彼女は試作ワクチンのＰＴとＦＨＡの比率が１：３であって、研修を受けた時と比率が異なることを懸念し、そのために仕事がそれ以上進んでいなかった。

この件については決まった比率がないので、力価試験をして、基準以上の力価を有しておれば問題なく使用できるので、力価試験に進むべきであった。

(2) 組織培養狂犬病ワクチンの開発経過（Prakorb Ruengsairatanarojn）

ニワトリ胎児細胞の培養系で不活化狂犬病ワクチンを試作している。自家検定が済んでいないので、成功したか否かは判断できない。しかし、過程は首尾よく進んでいたので、成功の可能性は高いと判断した。

(3) 風疹ワクチンの開発経過（Malinee Chittaganpitchの報告）

日本の市販風疹生ワクチンからワクチンウイルスを得て、日本ウズラの胎児細胞で風疹生ワクチンを試作している。力価（感染価）が少し低いこととトリ白血病ウイルスの迷入についての検定が出来ていないことが問題点である。

力価が低いことは何回か練習を積むことによって解決できると考えるが、トリ白血病ウイルスの迷入に関する検定はウズラのＳＰＦコロニーを設置することと検定試験の研修が必要である。

(4) 日本脳炎ワクチンの試験接種成績（Suntaree Rojanasuphotの報告）

マウス脳を用いて日本脳炎ワクチンを試作し、それについてタイ国内で野外試験接種を行った結果のSuntaree Rojanasuphotらの報告は素晴らしいものであった。免疫持続は対照に用いた日本製のワクチンよりも長期間を保証出来る成績であった。

タイＮＩＨにワクチン開発の能力があることを証明する報告であると考える。

ワクチンの開発（試作、検定、試験接種などを含めて）・製造は微生物学、生物学、動物学、医学をはじめ、化学、薬学などにわたる広く且つ深い知識と経験、更にはその国の工業力があいまって始めて成功するものである。

タイＮＩＨでは多くの日本人専門家のこれまでの努力によって、ワクチン開発に関して短期間にかなりのレベルに達して来ていると判断出来るが、タイ側スタッフが日本人専門家に余りにも頼り過ぎている面も否定できない。試行錯誤を行って理想に近づこうとする努力が少ないように感じた。

今後は技術のみならず学問的な面でのレベルアップ（すなわち自主的な、知識の獲得とその応用、問題解決の方法の習得などに関して）が必要であろう。また、問題解決については現場のスタッフからその上司への問題提起と、研究所責任者の的確で具体的な指示が必要であると考える。

3－2－2 細菌

(1) 下痢症性細菌……大腸菌、サルモネラ菌、コレラ菌等……の検出及びそのサーベイランスのためのＤＮＡプローブ、ハイブリダイゼーション法、ＲＰＩ．Ａ法、プラスミドプロファイル法、ファージ型タイピング法等の技術が日本側エキスパートからタイ側カンターパートに伝授され、それを用いた結果が報告された。一部にはその技術を用いて独自にサーベイランスを行なった結果も報告されたが、大部分はエキスパートとともに行なった結果であった。伝授された技術をどう使いこなし実際に応用して行くかが今後のタイ側の努力にかかっていると思われる。

(2) melioidosisについての報告は、ひとつの流れのある研究報告であった。タイ国に多い病気でありテーマとしてのオリジナリティも高く、これは長期滞在の日本側エキスパートのリードのもとに行なわれている成果だと思われる。

(3) マイクロコンピューターを用いての微生物病原体情報システムの開発が行なわれているが、日本側エキスパートの滞在期間が短く、完全なものとしてできあがっていない。ソフトを含めた確立を目指すにはかなりの時間を必要とすると考えられるので、何処までサポートを行なうのかの方針が必要と思われる。

(4) 百日咳ワクチンの製造法を阪大微研観音寺で研修後、タイ側独自に製造してＰＴ．ＦＨＡのほぼ純粋なものを得ていた。が、その力価などについての検査が行なわれていな

かった。それには、マウスなどについての研究所内でのコミニュケーションの不足に原因があるようであった。今回の発表会でお互いの情報交換が行なわれたので近々力価などの結果が得られると期待される。

全体として、最新技術の伝達は十分行なわれていると考えられるが、それをどの様に用いて行くかの応用面におけるタイ側の自立にはもう少し時間が必要のようである。なんらかの形で日本側からのサポートを続けることにより、今までの技術協力の成果及び努力が実るようにして行く必要性を感じた。

3－2－3　総合コメント

これまでの日本人専門家による技術指導は、タイ国ＮＩＨの主な研究スタッフの技術面のレベルアップに確実に貢献し、その成果は大である。ウイルス学、細菌学、感染免疫・病理学の基礎研究並びにワクチン開発、感染症実験室診断、疫学調査研究等の公衆衛生関連事業に必要な技術はかなり高い水準にあると思われる。しかし、これらの技術は現在のところ特定のタイＮＩＨスタッフの教育訓練によって導入され、個人の特技として評価される段階にある。今後はこれらの技術を如何にして研究所全体に普及し、ＮＩＨの共通の財産として維持、発展させるかが課題であると思われる。そのためのスタッフ間の研究交流の促進と、ＮＩＨスタッフ自身によって企画される技術講習会等の実施が望まれる。（その実行の第一回として、すでに金井チーム・リーダーの提案により、近々Wattana氏が中心となって、ＰＣＲの所内講習会が企画されている。）

第２の問題は、タイＮＩＨスタッフ全体の傾向として、新しいバイオテクノロジー技術導入に熱心な余り、技術習得それ自体に研究活動の大きな意義を感じているように見えることである。今回のサイエンスミーティングにおいても習得した技術をどんな研究業務に生かすべきかについて、もっとつっこんだ討論が欲しかった。研究の動機付けについて考えてゆくことが今後の課題の一つである。もっともこれは、研究その他の業務のオリエンテーションの問題、プライオリティの選択の問題であるので、各部門長や室長レベルのスタッフの責任である。勿論、ワクチン関連研究やタイ国風土病のMelioidosisの研究の例に見られるように、タイ国にとって必要な研究の発展への見事な応用が実現しつつあることは高く評価される。

第３の問題は、研究業務の遂行に当たって、万事日本人専門家に頼る傾向が強すぎるようである。これは、もちろんスタッフの個人差はあるが、今回のコンサルテーションの機会に現地指導に当たっていた日本人専門家の共通の意見であり、本プロジェクト終了後のＮＩＨの将来の活動に対する不安要因の一つである。困難にぶつかればすぐ日本人専門家の派遣を要請してそれを解決しようとするやり方は、日本人にとってはそれだけ彼らの高い信頼を受けている証拠としてできる限りその要請に答えたいと考えるだろうが、ＮＩＨ

の独立的発展のためには、その対応策として新しい協力方法を考えるべき時期にきていると思われる。

第4の問題点として、感染症サーベイランス体制の確立とその強化を目的とする病原体情報システムの開発研究について言及したい。現在、日本側エキスパート（津野専門家）の指導のもとに、コンピュータを用いた検査室由来情報処理システム（ＬＯＩＳ）の開発研究が進行中であるが、そのソフトウエアのデザインについては、タイ国の現状に即した実行可能な仕様について現地側の専門家、とりわけ情報提供側（検査室を含むサーベイランス協力機関の現場）との十分な打ち合わせが必要であろう。

現在開発中のコンピュータソフトを利用して信頼性の高い情報処理を行うためには、その基礎となる情報を収集するネットワークシステムの構築や、検査の精度の確保が並行して重要な課題となる。タイ国の現状を鑑みると、精度の高い病原体情報の収集を目的とした感染症レファレンスネットワークの確立も急務であると言える。

最後にエイズ対策への貢献について言及する。バンコクにおけるエイズ感染者の急激な増加は単にタイ国の問題にとどまらずアジア諸国全体に及ぼす影響を考えると、その対応はＤＭＳにとって急務である。特にＮＩＨの役割は、エイズ・サーベイランスへの協力、とりわけ実験室診断体制の確立であろう。現在ＮＩＨでは、血清抗体のスクリーニング試験、確認試験、末梢血リンパ球からのＨＩＶ　ＤＮＡ検出（ＰＣＲ）試験などの実施が可能であり、ImmunologyのWattana氏がその活動の主力であるが、技術者の補充による強化が必要と思われる。できればVirology Unitの協力体制が望まれる。検査法の精度管理が重要である。

以上、タイ国ＮＩＨの研究活動状況について、全体的な観点からコメントを加えた。尚、短い滞在期間のため、十分な調査を行うことはできなかったが、動物実験施設、ＲＩ実験施設についても見学する機会を得た。過去5年間で機器設備の充実と利用状況が格段に進歩したと見受けられた。

付　属　資　料

(1)　プロジェクトの部門別中間実績

①　専門家派遣

②　研修員受入

③　機材供与

(2)　サイエンスミーティングプログラム及びアブストラクト

(3)　タイ医科局（ＤＭＳ）人事（１９９０．１０月現在）

(4)　コーディネーティングコミッティー資料

資料１　プロジェクト協力の部門別中間実績

①　専門家派遣　（１９８５年度～１９９０年度）

②　研修員受入　（　　〃　　）

③　機材供与　（　　〃　　）

専　門　家　派　遣　実　績

長期専門家

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済赴任中区分	赴任時現職
1	中島　衡平	一般	3	業務調整	長期	新規	85. 8. 1～92. 7.31	赴任中	無　職
2	吉田　正道	〃	2－1	日本脳炎ワクチン	〃	〃	85.12.11～89. 3.10	帰国済	(財)阪大微生物病研究会観音寺研究所品質管理部　課長補佐
3	金井　興美	医	特－1	プロジェクトリーダー	〃	〃	87. 4.20～92. 7.31	赴任中	元国立予防衛生研究所　副所長　無職
4	田中　和夫	一般	1－1	衛生昆虫学	〃	〃	87. 8. 7～89. 1. 6	帰国済	帝装化成㈱学術研究部　部長
5	吉岡　靖之	〃	6－1	生化学	〃	〃	85.11.20～86. 2.19	帰国済	無　職
6	近藤　栄子	医療	特－2	細菌学	〃	〃	90.11. 1～92. 7.31	赴任中	無　職

短期専門家

１９８５年度（昭和６０年度）

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済赴任中区分	赴任時現職
7	有村　薫	一般	5－2	免疫化学	短期	新規	85. 9. 5～85. 9.26	帰国済	元国立予防衛生研究所　無職
8	阪崎　利一	〃	特－2	細菌学	〃	〃	85. 9. 5～85. 9.30	〃	元国立予防衛生研究所　無職
9	村田　良介	医療	特－1	チームリーダー ワクチン コントロール	〃	〃	85. 9. 5～85.10.16	〃	元国立予防衛生研究所　所長　無職
10	佐藤　保	一般	1－1	生化学	〃	〃	85.11.20～86. 2.19	〃	国立予防衛生研究所 体液性免疫部　厚生技官
11	三輪谷俊夫	医療	特－2	細菌学	〃	〃	86. 2.23～86. 3. 9	〃	大阪大学微生物病研究所 細菌血清学部門　教授
12	本田　武司	医療	2－1	細菌学	〃	〃	86. 2.23～86. 3.16	〃	大阪大学微生物病研究所 細菌血清学部門　助教授

１９８６年度（昭和６１年度）

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済赴任中区分	赴任時現職
１３	岩佐　三郎	一般	特－２	生物統計	短期	新規	86. 5.28～86. 8.27	帰国済	国立予防衛生研究所　安全発熱試験室
１４	鈴田　達男	医療	特－２	免疫学	〃	〃	86. 7.25～86. 8.26	帰国済	東京医科大学　教授
１５	和田　義人		特－２	昆虫学	〃	〃	86. 8.10～86. 8.30	帰国済	国立予防衛生研究所　衛生昆虫部長
１６	伊藤　嘉典		３	真菌毒素	〃	〃	86. 9.14～86.12.13	帰国済	国立予防衛生研究所　食品衛生部第二
１７	中川　雅郎	一般	特－２	昆虫学	〃	〃	86.12. 1～87. 1.31	帰国済	国立予防衛生研究所　獣疫部実験動物一室長
１８	根路銘国昭	一般	１－２	生物製剤	〃	〃	86.12. 5～86.12.26	帰国済	国立予防衛生研究所　ウイルスリケッア第３
１９	山西　弘一	医療	１－２	免疫学	〃	〃	86.12. 6～87. 1. 5	帰国済	大阪大学微生物病研究所麻疹部門　助授
２０	森谷　清樹		特－２	昆虫学	〃	〃	86.12.21～87. 1.20	帰国済	神奈川県衛生研究所　生物環境部長
２１	阪崎　利一	一般	特－２	細菌学	〃	〃	87. 2.10～87. 2.20	帰国済	無　職
２２	時吉　幸男	一般	２－２	狂犬病ワクチン計画打合せ	〃	〃	87. 2.16～87. 2.22	帰国済	財団法人化学及血清療法研究所　研究開発部
２３	坂本　国昭	一般	２－２	狂犬病ワクチン計画打合せ	〃	〃	87. 2.16～87. 2.22	帰国済	財団法人化学及血清療法研究所　第一製造部
２４	加藤　茂孝	一般	１－２	ラジオアイソトープ	〃	〃	87. 2.18～87. 4.22	帰国済	国立予防衛生研究所　主任研究官
２５	浅野　敏彦		２－１	実験動物	〃	〃	87. 3. 4～87. 4.28	赴任中	国立予防衛生研究所　獣疫部主任研究官

１９８７年度（昭和６２年度）

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済赴任中区分	赴任時現職
26	服部　畦作	一般	特－2	衛生昆虫学	短期	新規	87. 5. 8～87. 7. 7	帰国済	北海道立衛生研究所疫学部衛生動物科専門研究員
27	大西　敏之	一般	5－1	日本脳炎ワクチン	〃	〃	87. 9. 9～87.12. 3	帰国済	(財)阪大微生物病研究会不活化ウイルス部門　係長
28	佐藤　保	医療	1－1	細菌ワクチン製造の生化学	〃	〃	87. 9.13～87.12.12	帰国済	国立予防衛生研究所体液性免疫部　厚生技官
29	木原　光城	一般	特－2	マイコプラズマ	〃	〃	87.10.16～88. 3.15	帰国済	無　職
30	山崎　修道	医療	特－2	ウイルス病の分子疫学	〃	〃	87.11.12～87.11.18	帰国済	国立予防衛生研究所ウイルス中央検査部部長
31	長谷川髪子	一般	2－1	ウイルス病の分子疫学	〃	〃	87.11.12～88. 3.18	帰国済	国立予防衛生研究所ウイルス中央検査部主任研究官
32	近藤　蛍子	医療	特－2	ワクチン開発に必要な生化学	〃	〃	87.11.16～88. 3.15	帰国済	国立予防衛生研究所細菌免疫部結核室長
33	根路銘国昭	一般	1－2	ウイルス病の分子疫学	〃	〃	87.11.18～86.12.12	帰国済	国立予防衛生研究所ウイルスリケッア第３室長
34	保井孝太郎	一般	1－2	日本脳炎ウイルスの分子疫学	〃	〃	87.11.18～86.12.12	帰国済	
35	武藤　健	一般	特－2	実験動物	〃	〃	88. 1. 6～88. 2.27	帰国済	国立予防衛生研究所獣疫部実験動物第二室長

36	山西　弘一	医　療	1－2	モノクロナール	短期	新規	88. 1.10～88. 2. 9	帰国済	大阪大学微生物病研究所麻疹部門　助授
37	高木　光生	一　般	1－2	日本脳炎ワクチン	〃	〃	88. 1.13～88. 2. 3	帰国済	(財)阪大微生物病研究会　技術部次長
38	矢部　辰男	一　般	1－2	衛生昆虫学	〃	〃	88. 1.27～88. 3.31	帰国済	神奈川県衛生研究所生活環境部環境生物課長
39	田村　学	医　療	5－2	モノクロナール	〃	〃	88. 2. 1～88. 5.21	帰国済	大阪大学微生物研究所
40	阪崎　利一	一　般	特－2	病原細菌の原則と制度管理	〃	〃	88. 2.19～88. 3. 5	帰国済	無　職
41	吉崎　悦郎	一　般	3	病原細菌の原則と制度管理	〃	〃	88. 2.19～88. 3. 5	帰国済	国立篠山病院臨床検査技師長
42	下条　寛人	医　療	特－1	培養細胞の収集・保持	〃	〃	88. 3. 2～88. 3.10	帰国済	無　職
43	赤松　稜	一　般	特－2	細胞膜の生化学的性状	〃	〃	88. 3. 2～88. 3.12	帰国済	国立予防衛生研究所化学部長
44	水沢　博	一　般	3	ウイルス感染による細胞変性効果と細胞変異	〃	〃	88. 3. 6～88. 3.10	帰国済	国立衛生試験場変異原性部細胞開発研究室長
45	浦沢　正三	医　療	1－1	ロタウイルス	〃	〃	88. 3.16～88. 3.24	帰国済	札幌医科大学教授

１９８８年度（昭和６３年度）

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済赴任中区分	赴任時現職
46	倉橋　弘	一般	1－1	衛生昆虫学	短期	新規	88. 4. 8～88. 6.18	帰国済	国立予防衛生研究所昆虫部室長
47	時吉　幸男	一般	2－1	狂犬病ワクチン	〃	〃	88. 5. 5～88. 6.14	帰国済	(財)阪大微生物研究会不活化ウイルス部門　係長
48	須藤　鎭世	医療	1－2	変異原性	〃	〃	88. 8. 1～8.8. 8.31	帰国済	伊藤ハム株式会社　中央研究所
49	中村　明子	医療	特－2	ファージ型別	〃	〃	88. 8. 5～88.10. 4 88.	帰国済	国立予防衛生研究所　細菌部ファージ型別室室長
50	阪崎　利一	一般	特－2	細菌学	〃	〃	88. 8.18～88. 8.31	帰国済	無　職
51	猿渡　勝彦	一般	2－1	細菌学	〃	〃	88. 8.18～88.11.17	帰国済	佐世保市総合病院　検査部
52	江崎　孝行	医療	3	細菌学	〃	〃	88. 9.18～88.10.22	帰国済	岐阜大学　医学部　微生物学講座　講師
53	茂木　幹義	一般	1－2	蚊の生態学	〃	〃	88. 9.21～88.12.21	帰国済	佐賀医科大学　医学部微生物学教室助教授
54	由井　郁子	医療	2－2	ＲＳウイルス	〃	〃	88.10.17～88.11.17	帰国済	恩賜財団）済生会神奈川県病院小児科医長
55	佐藤　保	医療	特－2	細菌毒素	〃	〃	88.10.23～89.10.31	帰国済	国立予防衛生研究所 体液性免疫部　厚生技官
56	根路銘国昭	一般	1－2	ウイルス病の分子疫学	〃	〃	88.10.24～88.11.20	帰国済	国立予防衛生研究所 ウイルスリケッア第３室長
57	谷口　孝喜	一般	3	ロタウイルス分子疫学	〃	〃	88.11.12～89. 2.10	帰国済	(財)阪大微生物病研究会　技術部　次長

58	山西　弘一	医　療	1－2	ウイルス学	短期	新規	88.11.20～88.12.11	帰国済	大阪大学微生物病研究所麻疹部門　助授
59	坂本　国昭	一　般	2－1	狂犬病ワクチン	〃	〃	88.11.21～88.12.22	帰国済	財団法人化学及血清療法研究所 第一製造部
60	浅田　秀夫	医　療	5－2	免　疫　学	〃	〃	88.11.27～89. 1.26	帰国済	大阪大学微生物病研究所麻疹部門
61	加藤　茂孝	一　般	1－2	風疹ワクチン	〃	〃	88.12.18～89. 1. 8	帰国済	国立予防衛生研究所麻疹ウイルス部
62	檀原　宏文	一　般	1－2	細菌分子疫学	〃	〃	88.12.24～89. 1.23	帰国済	（社団法人）北里研究所研究部細菌２室 室長
63	阪崎　利一	一　般	特－2	臨床細菌学	〃	〃	89. 1.18～89. 1.31	帰国済	無　職
64	倉持　重彦	一　般	4	臨床細菌学	〃	〃	89. 1.18～89. 3.17	帰国済	アスカ純薬株式会社　開発部

１９８９年度（平成元年度）

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済赴任中区分	赴任時現職
65	坂本　国昭	一般	2－1	狂犬病ワクチン	短期	新規	89. 4.12～89. 5.24	帰国済	財団法人化学及血清療法研究所第一製造部
66	近藤　瑩子	医療	特－2	細菌学	〃	〃	89. 6. 1～90. 4.30	帰国済	無　職
67	山本　達男	医療	1－2	細菌学	〃	〃	89. 7. 3～89. 8.15	帰国済	順天堂大学　医学部細菌学教室　講師
68	中川　雅郎	一般	特－2	実験動物学	〃	〃	89. 7.25～89. 9. 8	帰国済	国立予防衛生研究所　獣疫部実験動物一室長
69	大田原美作雄	医療	特－2	リケッチア学	〃	〃	89. 9. 1～89.11.30	帰国済	無　職
70	佐々木　均	一般	2－2	衛生昆虫学	〃	〃	89.10.25～90. 1.19	帰国済	酪農学園大学酪農科　助教授
71	根路銘国昭	一般	1－1	ウイルス分子疫学	〃	〃	89.11. 6～89.12. 4	帰国済	国立予防衛生研究所ウイルス。リケッチア第３室室長
72	板村　繁之	一般	4	ウイルス学	〃	〃	89.11.10～89.12.20	帰国済	国立予防衛生研究所ウイルス・リケッチア第３室研究員
73	谷口　孝喜	一般	2－2	ロタウイルス分子疫学	〃	〃	89.11.14～90. 1.31	帰国済	札幌医科大学衛生学教室　講師
74	山西　弘一	医療	1－2	ウイルス学	〃	〃	89.11.19～89.12. 3	帰国済	大阪大学微生物病研究所麻疹部門助教授
75	坂本　国昭	一般	2－1	狂犬病ワクチン	〃	〃	89. 4.12～89. 5.24	帰国済	財団法人）化学及血清療法研究所品質管理課
76	倉田　毅	医療	1－2	病理学	〃	〃	89.11.20～89.12. 2	帰国済	国立予防衛生研究所病理部部長

77	薮内　英子	医　療	特－2	細　菌　学	短期	新規	89.12. 4～89.12.27	帰国済	岐阜大学医学部　微生物学講座　教授
78	池戸　正成	一　般	2－2	細　菌　学	〃	〃	89.12. 4～89.12.27	帰国済	栄研化学株式会社研究開発本部研究企画室　主任
79	檀原　宏文	一　般	1－2	細菌分子疫学	〃	〃	89.12.23～90. 1.22	帰国済	（社団法人）北里研究所研究部細菌２室室長
80	谷口　孝喜	一　般	2	ロタウイルス分子疫学	〃	〃	89.11.14～90. 1.31	帰国済	札幌医科大学衛生学教室　講師
81	佐々木　均	一　般	2	衛生昆虫学	〃	〃	89.10.25～90. 1.19	帰国済	北海道文理科短期大学酪農科　助教授
82	江崎　孝行	医　療	3	細　菌　学	〃	〃	90. 1.12～90. 2. 9	帰国済	岐阜大学医学部微生物学講座　講師
83	中村　明子	医　療	特	細　菌　学	〃	〃	90. 2.12～90. 3.13	帰国済	国立予防衛生研究所細菌部ファージ型別室長

１９９０年度（平成２年度）

通番	専門家氏名	専門家区分	号	指導科目	長短区分	継続新規	派遣期間	帰国済派遣中区分	赴任時現職
84	坂本　国昭	一般	2－1	狂犬病ワクチン	短	新規	90. 8.21～90.12.28	帰国済	(財)化学及血清療法研究所　品質管理課
85	津野　正朗	一般	2－1	細菌学	短	新規	90. 8.15～90.12.14	帰国済	東京都立衛生研究所
86	岩佐　三郎	一般	特－2	アエルラー百日咳ワクチン品質管理	短	新規	90.11. 5～91. 4. 4	派遣中	無　職
87	茂木　幹義	一般	1	医昆虫学	短	新規	90.11. 7～91. 1.31	帰国済	佐賀医科大学微生物学教室　助教授
88	倉田　毅	医療	1	感染症の病理学的診断	短	新規	90.11.23～90.12.14	帰国済	国立予防衛生研究所病理部　部長
89	武部　豊	医療	2	分子免疫学	短	新規	90.12. 3～90.12.28	帰国済	国立予防衛生研究所エイズ研究センターエイズ研究室　室長（ウイルス中央検査室）
90	武田　直和	一般	2	分子研究（腸内ウイルス）	短	新規	90.12.10～90.12.30	帰国済	国立予防衛生研究所ウイルス中央検査部主任研究官
91	山崎　修道	医療	特－2	ウイルス学	短	新規	90.12.10～90.12.16	帰国済	国立予防衛生研究所ウイルス中央検査部部長
92	渡辺　治雄	医療	2	細菌学	短	新規	90.12.10～90.12.16	帰国済	国立予防衛生研究所細菌部　部長
93	上田　重晴	医療	特－2	ワクチン学	短	新規	90.12.10～90.12.16	帰国済	大阪大学微生物病研究所　防疫学部門教授
94	橋口　道代	一般	5	協力計画	短	新規	90.12.10～90.12.16	帰国済	国際協力事業団医療協力部　医療協力課
95	根路銘国昭	一般	1	分子疫学（インフルエンザウイルス）	短	新規	90.12.20～91. 1.17	帰国済	国立予防衛生研究所ウイルスリケッチャ部第３室　室長
96	檀原　宏文	医療	1	細菌分子疫学	短	新規	90.12.25～91. 1.24	帰国済	社団法人北里研究所研究部　細菌２室室長

97	谷口　孝喜	一　般	2	ロタウイルス分子研究	短	新規	90.12.26～91. 1.15	帰国済	札幌医科大学衛生学教室　講師
98	後藤　一雄	一　般	5	実験動物学	短	新規	91. 1.19～91. 3. 2	派遣中	(財)実験動物中央研究所
99	五十嵐　章	医　療	特－2	分子疫学（日本脳炎及びデング熱）	短	新規	91. 2.13～91. 3. 2	派遣中	長崎大学熱帯医学研究所 ウイルス学部門　教授
100	森田　公一	医　療	3	分子疫学（日本脳炎及びデング熱）	短	新規	91. 2.28～91. 3.28	派　遣 予　定	長崎大学熱帯医学研究所 ウイルス学部門　講師

研修員受け入れ実績

１９８５年度（昭和６０年度）

通番	研修員氏名	研修期間	研修科目	研修機関
1	MRS. PREEYA KASHEMSANTA	85. 7.22～85. 8. 9	研究所経営管理	国立予防衛生研究所 (財)阪大微生物病研究会
2	DR. BOONLUAN PHANTHUMACHINDA	85. 9.18～85.12.18	研究所経営・計画	国立予防衛生研究所 (財)阪大微生物病研究会
3	DR. YAOWAPA PONGSUWANNA	85. 9.18～86. 3.31	ウイルス遺伝化学	国立予防衛生研究所他
4	MS. WALLAPA ISRANGKULNAAYUTHYA	85.10.29～86.10.28	ウイルス免疫化学	大阪大学微生物研究所
5	DR. SURACHAI TISHYADHIGAMA	85.12.11～86. 5.26	細胞遺伝学	東京医科歯科大・北里研究所
6	MS. NOPPAWAN JANEJAI	86. 3.25～87. 3.20	ＲＩの取り扱い	国立予防衛生研究所他
7	MRS. SURANG DEJSIRILERT	86. 3.25～87. 3.20	細菌学	国立予防衛生研究所、都立衛生研究所、群馬大

１９８６年度（昭和６１年度）

通番	研修員氏名	研修期間	研修科目	研修機関
8	DR. TANAVAT NANTAMINGCHARERN	86. 3.25～87. 3.20	実験動物飼育管理	国立予防衛生研究所
9	MRS. THEERANART JIVAPAISARNPONG	86.12. 2～87.12. 1	ワクチン開発	(財)阪大微生物病研究会
10	MRS. NATEEWAN POONWAN	86.12. 2～87.12. 1	病理学	大阪大学微生物研究所
11	DR. SOMPOP AHANDRIK	87. 3.10～87. 9. 9	ワクチン管理・開発	(財)阪大微生物病研究会 国立予防衛生研究所
12	MR. ANUSORN MALAINUAL	87. 3.10～88. 3. 9	蚊の生物学的防除	東京農工大
13	MS. KRUAVON BALACHANDRA	87. 3.15～88. 3.15	ウイルス免疫学	大阪大学微生物研究所
14	DR. ULIT LEEYAVANIJA	87. 7. 7～87. 7.20	研究所経営管理	国立予防衛生研究所 (財)阪大微生物病研究会

１９８７年度（昭和６２年度）

通番	研修員氏名	研修期間	研修科目	研修機関
15	MR. MALINEE CHITTAGANPITCH	87.10. 6～88.10. 5	風疹ワクチン	(財)阪大微生物病研究会
16	MR. PRAKORB RUENGRAIRA TANAROJN	87.10. 6～88.10. 5	狂犬病ワクチン	(財)化学及血清療法研究所
17	MRS. PRAYUTH BUDHIRAKUL	87.10. 6～88.10. 5	百日咳ワクチン	(財)阪大微生物病研究会
18	MS. WANPEN BOONWANICH	88. 3.22～89. 3.20	J. E. GENE CLOING	(財)阪大微生物研究会
19	MS. NUWANCHAWEE WETPRAS	88. 3.22～89. 3.20	細菌毒素	大阪大学微生物研究所
20	MS. SANIT PANHIRUN	88. 3.22～89. 3.15	ウイルス分子生物学	国立予防衛生研究所

１９８８年度（昭和６３年度）

通番	研修員氏名	研修期間	研修科目	研修機関
21	MRS. SUWANA CHARUNUT	88. 8.26～89. 8.24	毒物学・発癌物質	国立予防衛生研究所
22	MS. JOTIKA BOON-LONG	88.10.18～89.10.17	細菌分類学	東北薬科大学
23	MRS. NIPA BENJAPHONG	89. 3. 7～90. 3. 4	昆虫分類学	国立予防衛生研究所、 都立衛生研究所
24	MS. SUMALEE BOONMAR	89. 3.19～90. 3.18	ウイルス性肝炎	国立予防衛生研究所
25	MR. PREECHA CHUNGSAMANUKOOL	89. 3. 6～90. 3. 8	食中毒菌の同定	都立衛生研究所
26	MS. SIRIMA PATTAMADILO	89. 3.21～90. 3.19	ジーンクローニング	札幌医科大学
27	MS. AMNUEYPHORN TANTIVEJAKUL	89. 3. 6～90. 3. 8	研究所経営管理	国立予防衛生研究所 (財)阪大微生物病研究会

１９８９年度（平成元年度）

通番	研修員氏名	研修期間	研修科目	研修機関
28	MS. WANTANA PAVEENKITTIPORN	89.10.17～90.10.15	毒物学・発癌物質	順天堂大学医学部 微生物学教室
29	MR. MONGKOL CHENNITTIKUL	89. 6.22～90. 6.21	細菌分類学	神奈川衛生研究所
30	MS. NAWAPORN ANANTASINKUL	89. 6.19～90. 6.18	昆虫分類学	静岡大学薬学部
31	MRS. KASAMA SUPANARANOND	89. 6.22～90. 6.21	ウイルス性肝炎	国立予防衛生研究所

１９９０年度（平成２年度）

通番	研修員氏名	研修期間	研修科目	研修機関
32	MRS. RAEWADEE BUTRAPORN	90. 9.20～91. 8.27	実験動物のモニタリング	国立予防衛生研究所 実験動物中央研究所
33	MRS. KANCHANA LEEIASIRI	90. 8.28～90.11.28	ワクチン製造と製品管理	国立予防衛生研究所 (財)阪大微生物病研究会
34	MS. NAIYANA KANOGSUNCHARNRAT	90.10. 7～91. 8. 7	機材保守	メディサン
35	MR. PAIJIT WARACHIT	91. 2.21～91. 5. 1	ウイルス学	国立予防衛生研究所

機 材 供 与 実 績

会計年度	主要供与機材の項目	支出額
１９８５－１９８６年	電気泳動装置	￥２２,０００,０００－
	恒温槽	
	Water aspirator & Cooling Bath	
	脱水装置用水槽	
	Metabolism Cage	
	冷却遠心器	
	ステーションワゴン	
	マイクロバス	
	医薬品	
１９８６－１９８７年	CO_2 培養器	￥２３,０００,０００－
	電気泳動装置	
	Ｒ．Ｉ．実験室用機材	
	Ultrasonic Cell Processor	
	医薬品	
１９８７－１９８８年	個体管理用動物ケージ	￥４５,０００,０００－
	医学図書	
	総窒素分析機	
	マウスケージ	
	凍結乾燥機	
	Fraction Collector	
	小型遠心機	
	医薬品	
１９８８－１９８９年	超高速遠心機	￥６０,０００,０００－
	Deep Freezer	
	超音波細胞破砕装置	
	マルチチャンネル分析機	
	ナイフ　メーカー（電子顕微鏡用）	
	孵卵機	
	分光光度計	
	蛍光顕微鏡	

	モンキーアイソレーター	
	吸入用チャンバー	
	Toxinometer	
	医薬品	
１９８９－１９９０年	超高速遠心機	￥５０,０００,０００－
	ファクシミリ	
	ガスクロマトグラフィー	
	CO_2 培養装置	
	超音波洗浄器	
	高性能液体クロマトグラフィー	
	超音波洗浄器	
	ヒュームフード	
	バイオハザード用超高速冷却遠心機	
	ＥＬＩＳＡリーダー	
	医薬品	
１９９０－１９９１年	高圧蒸気滅菌器	￥２５,０００,０００－
	コピー機	
	エライザソーダー	
	濃縮器	
	ＰＣＲ	

資料2　サイエンスミーティングプログラム及びアブストラクト

ABSTRACTS

RESEARCH PROGRESS

OF THE

RESEARCH PROMOTION PROJECT

NATIONAL INSTITUTE OF HEALTH

DEPARTMENT OF MEDICAL SCEINCES

BANGKOK, THAILAND

PRESENTATION

TO

THE JAPANESE CONSULTATION TEAM

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

12th - 13th December, 1990

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Detection of proviral DNA of the HIV in peripheral blood mononuclear cells of intravenous drug users in Thailand

Wattana Auwanit

Health Science Research Institute

Fourty-eight samples of plasma and peripheral blood mononuclear cells (PBMCs) were collected from each individual of intravenous drug users (IVDU) in Thailand in July 1990. All plasmas were tested for HIV-1 antibody and antigen by gel particle agglutination (GPA) and enzyme immunoassay (EIA), respectively. Proviral DNA of HIV-1 in PBMCs was detected by polymerase chain reaction (PCR), an in vitro gene amplification technique using three pairs of primer from gag, env and LTR regions. Among 24 samples from seropositive IVDU, 13 (54%) samples were positive by PCR but only 6 from 24 (25%) seronegative IVDU were PCR positive. There were 7 (14.5%) from 48 samples were HIV-1 antigen positive and 3 of them (43%) were PCR positive.

Production of monoclonal antibody to dengue virus

Panasda Isarangkul Na Ayuthaya

Health Science Research Institute

Application of hybridoma technique which was achieved through the training course has been established in the project of production of monoclonal antibody to dengue virus type 1.

The purification of dengue virus type 1, Hawaii strain, was prepared and used for immunization. After fusion of immune mouse (balb/c) spleen cells and myeloma cells by using polyethylene glycol, hybrid cells were selected and screened by indirect immunofluorescent antibody assay (IFA). The positive clones were further cloned and tested for dengue type-specific antibody producing clones.

Eventually, a clone (H11) consistently produced antibody specific for dengue-1 and dengue-2 viral antigen, not type 3 and type 4 antigens. IFA titer to dengue-1 and dengue-2 of antibody from clone H11 in tissue culture and in ascited fluid were 1:100 and 1:10,000, respectively. The monoclonal antibody in tissue culture fluid was then concentrated 10-fold, using an ultracentrifugation membrane cones CF 25 (Amicon company) and the titer was increased to 1:100. Moreover, ascites fluid monoclonal antibody was purified by Protein A Affinity Chromatography.

Other dengue type specific monoclonal antibody, McAb Den-2, Den-3, Den-4, were also prepared from growing dengue type specific hybridoma clones kindly obtained from Center for Diseases Control, For Collin, colorudo in tissue cultures. Thus, the application of NcAb produced (H11) is likely to adopted as a specific reagent for identification of dengue-1 serotype since the dengue-2 specific McAb has been available.

All of McAb produced, 30, 20, 10 and 20 ml of anti dengue types 1, 2, 3 and 4 respectively were lyophilized and handed to Arbovirus section, Virus Research Institute.

Future plans

Production of McAb e.g. HIV McAb in orden to serve as a specific reagent of ELISA Ag test which is a future project of Immunology section.

Human Herpesvirus 6 (HHV-6) Infection and Exanthem Subitum in Thailand

Kruavon Balachandra

Health Science Research Institute

HHV-6 has been proved to be the causative agent of exanthem subitum in infants in Thailand by serology and virus isolation Thirty-one (62%) from 50 patients suspected clinically as exanthem subitum were serodiagnosed as HHV-6 infection. Sixteen strains of HHV-6 (52%) were isolated from 31 patients whose antibody titers had converted to positive during convalescent phase. The disease occurred in infants from three months to one year of age and most frequently at age 5-6 months. Antibody converted to only HHV-6 in 23 cases (46%) of 50 patients, and seroconversion was also observed to both HHV-6 and dengue virus in 7 patients (14%), and to both HHV-6 and coxsackie B virus in 1 case (2%). All the 23 patients in whom seroconversion only to HHV-6 was observed had fever and rash which mostly appeared after subsidence of fever. Lymphadenopathy and relative lymphocytosis were prominently recognized, association with diarrhea, vomiting, running nose, cough and hepatomegaly, and furthermore convulsion during febrile phase was seen in some cases. All patients recovered completely within a week.

Prevalence of Antibody to Human Herpesvirus 6 in Women and Children

Kruavon Balachandra

Health Science Research Institute

The antibody prevalence to human herpesvirus 6 (HHV-6) was compared between pregnant women and control women of similar ages in Thailand. No significant difference was detected in the antibody positive rate and antibody titers between both groups. The antibody titers in sera collected from pregnant women at the 1st and 3rd trimesters remained unchanged. Next, the antibody prevalence in infants were examined and the positive rate decreased until 3 months and started to increase from 6 months after birth. The present results suggest that the reactivation of HHV-6 might not occur during pregnancy and this virus infects infants postnatally.

Hybridoma Technique and Southern Blot Hybridization

Sirima Pattamadilok

Virus Research Institute

I was trained in the Sapporo Medical College, Kyushu University on the topic of the preparation of respiratory syncytial virus (RSV) monoclonal antibody and detection of human papilloma virus (HPV) by southern blot hybridization during Mar. 21, 1989 to Mar. 19, 1990.

The hybridoma technique for obtaining a monoclonal antibody of defined specificity has an enormous impact on many areas of biological and medical research. I learned this method to produce monoclonal antibodies (MAbs) against RSV from Dr. Tsutsumi at Sapporo Medical College. After I finished my training, I got some MAbs. With application of these MAbs to antigenic analysis of RSV, I can characterize the epidemiological pattern of the occurrence of RSV subgroup A and B strain in Bangkok, during two epidemic years (1988-1989). MAbs have proven extremely useful in studies of microorganisms. By this technique, I can apply for development of diagnostic methods for infectious diseases.

Southern blot hybridization is used for analysis of genomic DNA. I learned this method from Dr. Y. Toh at Kyushu University. Briefly, the expected DNA is then denatured and transfered from the gel to a solid support by using the method of capillary

transfer. The DNA attached to the filter is hybridized to radio-labelled DNA (probe). I examined condylomata acuminata from patients for the presence of human papillomavirus (HPV) genome. Thus, HPV typing by DNA-hybridization technique has become essential in assessing the malignant potential of a HPV lesion. In the near future, this technique will be used in our co-project (Thai-Japan) to study the epidemiology of juvenile laryngeal papilloma in Thailand. HPV 6 and 11 DNA as probe will be prepared by Japanese experts. DNA hybridization technique is suitable for analysis of mammalian genomic DNA. If we have an opportunity to learn the method to prepare probe, we can apply this technique for the other medical researches.

Occurrence of Respiratory Syncytical Virus Subgroup A and B Strains in Bangkok, 1988-1989.

P. Thaeatsupha, S. Pattamadilok, A. Veranarongkorn,
P. Maneewong, C. Jayavasu
Virus Research Insitute,
Department of Medical Sceinces

Respiratory syncytial virus (RSV) is the most common cause of severe lower respiratory infections among infants and children, especially those between 2 and 6 months of age. The subgroup characteristic of 33 strains of RSV isolated in Bangkok, Thailand, during two epidemic years from 1988 to 1989 were determined by the use of 4 monoclonal antibodies (MAbs). Two MAbs, B4 and B5, immunoprecipitated the fusion protein (F) and the other two, A4 and C1, immunoprecipitated the large glycoprotein (C). Based on the pattern of reaction of these MAbs to RSV isolates in an indirect immunofluorescent antiobody technicque (IFA), we were able to distinguish two different subgroups. Subgroup A strains reacted to all (4) MAbs and subgroup B strains reacted to one (clone no.B4) of these MAbs. From the first epidemic year, all six isolates were subgroup A strains. In the last epidemic year, 25 strains of 27 isolates belonged to subgroup A and only two were subgroup B. At present, subgroup A strains were predominantly isolated in the occurrence of RSV for these two epidemic years in Bangkok.

Molecular cloning of Coxsackie (EH24/70) virus A24 variant and nucleotide sequencing analysis

Kasama Supanaranond

Virus Research Institute

During June 1989 - June 1990 I was trained at the National Institute of Health Murayama Annex, Tokyo, in the topic of the nucleotide sequence of the genome of the standard strain of CA24v, EH24/70 determined by using molecular cloning and rapid sequencing analysis.

To determine the nucleotide sequence of the genome of the standard strain of CA24v, EH24/70 causing acute hemorrhagic conjunctivitis (AHC) the following activities were carried out:

- Propagation of EH24/70 virus in Hela cell.
- Virus purification: Centrifuge through 15-30% (w/w) sucrose density gradient.
- Virion RNA preparation: centrifuge through 15-30% (w/w) sucrose density gradient.
- The cDNA synthesis was done as described by Gubler and Hoffman.
- The molecular cloning of double-stranded cDNA was carried out by d(G). d(C) homopolymeric tailing method.
- The dideoxynucleotide chain termination DNA sequencing procedure (Sanger et.al, 1977) was employed.
- Data compiling and analysing by using computer.

It is expected that such techniques will be useful as follows:

1. Determination of the coding regions for each major viral polypeptide and their amino acid sequences.
2. Knowledge of the amino acid sequence will aid in the isolation and characterization of the viral gene products, for example, by antisera elicited by specific synthetic oligopeptides.
3. The sequence data have been instrumental in detecting and mapping cloned fragments of Coxsackie virus A24 variant cDNA.
4. The sequence data have been useful in the prediction of cleavage sites of restriction enzymes and in the screening of clones by hybridization of 5'-32p-labelled oligonucleotides to the DNA of plasmid containing E. coli.
5. Construction of a phylogenetic tree using the base sequence variation of the virus genomes is useful in the study on viral evolution and may elucidate the origin and the route of transmission of the virus.
6. The development of vaccines by biotechnology requires the genome structure and the gene organization.
7. Construction of specific inhibitors of the viral proteinase utilizing a knowledge of their cleavage specificity may lead to a novel get off antiviral chemotherapeutic agents.

Future plan: To study on molecular cloning of AHC virus isolated

Virus Gene Cloning

Wanpen Boonwanich

Virus Research Institute

During 1 April, 1988 to 3 March, 1989 I was trained at the Biotechnology Centre of Handai Biken Kanonji Institute, on the topic of Japanese Encephalitis Virus (V3) gene cloning.

V3 gene of Japanese Encephalitis Virus (JEV) was used as a model for gene cloning in my training course in Japan. The procedures were including purification of JEV, synthesis of cDNA from JEV-DNA, insertion of cDNA into plasmid vector, transformation into bacterial cell (E.coli), detection of recombinant E.coli containing V3 gene by colony hybridization method, DNA sequencing and construction of expression vector containing V3 gene. After returning to NIH, with my basic knowledge from Japan, I have an opportunity to learn more advance technique with JICA's expert, Dr. S. Itamura, who transfered the technique in construction of Hepatitis B surface (HBs) gene into vaccinia vector and the production of HBsAg by using vaccinia vector. This research work is very useful for development of our diagnosis of HBV such as ELISA, RPHA and RIA, to serve the public health. Moreover, we can apply the above technique for research of the molecular of viral pathogens.

Molecular Virology

Yaowapa Pongsuwanna

Virus Research Institute

In September, 1985, I had an opportunity to be trained in Japan for 18 months in the field of molecular virology at National Institute of Health, Japan and Tokyo Metropolitan Institute for Neurosciences, and attended the training course of the Application of Radioisotope in Scientific Research at Radioisotope and Nuclear Engineering School for 1 month.

I gained some basic and advance technology in molecular study of (1) enterovirus using oligonucleotide fingerprinting analysis technique for CoxA24 variant virus, rotavirus study and using double strand RNA electropherotyping technique for detecting virus. (2) influenzavirus study using prelabelling and postlabelling technique of radioisotope substance for RNA migration pattern analysis and oligonucleotide fingerprinting analysis of an isolated Thai strain and Japanese strain and; (3) JEV study using molecular cloning technique. I performed nucleotide sequence in a part of E gene of Yokohama strain of JEV and analysed the result by genetic software.

I had basic knowledge and techniques in the use of radiation and radioactive materials for research experiment with safety management.

In June 1987, at NIH Thailand I carried out the research project granted by WHO entitled "Study on Genetic Differences of

Japanese Encephalitis Virus in Northern Thailand". Ten strains of JEV isolated from human, pigs, mosquitoes were studied by oligonucleotide fingerprint analysis. It was found that oligo nucleotide maps were different among JEV from different host.

In 1987, the molecular study of rotavirus was carried out using ds RNA electropherotyping. It was found that children below 2 years of age were infected by 76 % of long electropherotype. Monthly distribution among patients with rotavirus infections was most occurred in January. The incidence of human rotavirus was highest at age 7-12 months.

In 1988, the study of rotavirus was shift from the period of transfer knowledge and technology to the stage of collaborative study.

In 1990, participating to WHO plan on the global eradication of poliomyelitis by the year 2000 we started to do research project entitled genetic difference of poliovirus between vaccine strains and isolated wild strains in Thailand using nuclear technique granted by International Atomic Energy Agency (IAEA). This project is going on and will be finished in April 1991.

Future plan

1. Rotavirus study

- Seasonal variation and geographical distribution of human rotavirus in different localities in Thailand using group, subgroup and serotype specific monoclonal antibodies and dsRNA electropherotyping.

- Isolation of typical and atypical strains of human and animal rotavirus in cell culture for RNA analysis by RNA-RNA hybridization and nucleotide sequence.

2. Poliovirus study.

- Genetic difference of poliovirus between isolated strain and vaccine strain by oligonucleotide fingerprinting analysis.

Past and current research paper after training in Japan

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2. Pongsuwanna, Y., Jayavasu, C., Srichamorn, S., Sa-Ngobwarchar, P., Study on Rotavirus by IAHA Test and RNA Migration Pattern Analysis on PAGE. Presented in 5th National Seminar on Epidemiology, Bangkok, Thailand.
3. Pongsuwanna, Y., Jayavasu, C., Boonwanich, W. Molecular Epidemiology of Human Rotavirus in 1986-1987. Presented in 5th National Seminar on Epidemiology, August, 1987, Bhumiphol Hospital, Bangkok, Thailand.
4. Pongsuwanna, Y., Supranaranon, K., Boonwanich, W., Pothipunya, S., Jayavasu, C. Study on genetic difference JEV Northern Thailand, as determined by oligonucleotide fingerprinting analysis presented in the 7th National Seminar on Epidemiology, August 1989, Bangkok P. 50-51.

5. Pongsuwanna, Y., Boonwanich, W., Jayavasu, C., (1987) Molecular Epidemiology of Human Rotavirus during winter Season in 1986/1987. Kasetsart Veterinarians. 8 : 193-201.

6. Pongsuwanna, Y., Hasegawa A., Jayavasu, C. The detection of human rotavirus by electrophoresis of genome RNA and immune adherence haeagglutination test. Presented in the 1st Annual Research Seminar of Department of Medical Sciences, Bangkok, Thailand, 15-16 December 1988, P. 20

7. Pongsuwanna, Y., Taniguchi, K., Choonthanom, M., Chiwakul, M., Susansook, T., Saguanwongse, S., Jayavasu, C., Urasawa, S. (1989) Subgroup and serotype distributions of human, bovine and porcine rotavirus in Thailand. J. Clin. Microbiol. 27 : 1956-1960.

8. Pongsuwanna, Y., Taniguchi, K., Choonthanom, M., Chiwakul, M., Jayavasu, C. Molecular and Antigenic Characterizations of Human and Bovine Rotavirus : Analysis with [32p]. RNA probe and MaAbs. presented in 8th National Seminar on Epidemiology, August 15-17, 1990, Bangkok, Thailand. and Southeast Asian J. of Trop. Med. Publ. Health. (in press)

9. Taniguchi, K., Pongsuwanna, Y., Choonthanom M., Urasawa S. (1990) Nucleotide sequence of the vp7 gene of a bovine rota virus (strain 61a) with different serotype specificity from serotype 6. Nucleic acid research. 18 : 4613.

Oligonucleotide fingerprinting analysis, production of HHV-6 monoclonal antibody and electron microscopic technique

Sanit Panhirun

Virus Reserach Institute

My knowledge and experience gained after one year training in Japan are as follows:

- Influenza virus purification by discontinuous sucrose gradient two times.
- Extraction and purification of RNA by phend.
- Oligonucleotide fingerprinting analysis labelled by ^{32}P-ATP and polynucleotide kinase, 2-dimensional polyacrylamide gel electrophoresis and autoradiography.
- Separation of peripheral blood MNCs from cord blood by Ficoll-Hypaque.
- Preparation of HHV-6 antigen. Seed virus was inoculated in cord blood lymphocyte, collected cell, sonicated and mixed with Complete Fruend's adjuvant before immunized.
- Immunization of mice in intraperitoneal (IP).
- Cell fusion with polyethylene glycol (PEG).
- Cloning under condition of limiting dilution.
- Testing for antibody specificity by FITC.
- Shadow casting by Pt-Pd.
- Quality control by Electron microscope.

Biological Study of Rabies Virus and Antibody

Pornthip Samuthananon

Virus Research Institute

Name of Expert: Dr. Sachio Tokiyoshi

The technology transfer

The technology divided into 3 phases

1. The fundamental technique on EIA to detect the rabies neutralizing antibody. (May 5 - June 4, 1988)
2. A. Purification of the mouse antirabies IgG from ascites fluid.

   B. Preparation HRP-conjugate.

   (Feb. 12 - March 26, 1990)
3. A. Preparation of monoclonal antibody to rabies for EIA technique.

   B. Maintenance of hybridoma cell for producing monoclonal antibody to rabies virus.

   (Will be continued on the next year)

The research work:

After the first two phases of transfering technology. I set up a research work to study the rabies neutralizing antibody of the patient after immunizing with rabies vaccine by using the EIA method, and compare the result to the method of standard mouse neutralization test (MNT). The title is "Enzyme Immuno Assay for the Detection of Rabies Neutralizing Antibody". The work has -

been published in The Bulletin Of The Department of Medical Sciences. The comparative data from the two tests point to the sensitivity of EIA as well as MNT. The result indicates that EIA can be obtained rapidly in 4 days instead of 21 days by MNT with accurate result.

EPIDEMIOLOGY OF SPORADIC ACUTE VIRAL HEPATITIS IN THAILAND

Chuinrudee Jayavasu[1], Somsak Wattanasri[2], Suranga Saguanwongse[1], Boonsong Pojanagaroon[1], Sumalee Boonma[1,*], Akeau Unahalekhaka[2], Manit Leethochawalit[3], Pensri Bhanganada[3], Patrayouth Orprayoon[4], Chaiwat Ngarmpiyasakul[4] and Prayura Kunasol[2]

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3. Vachira Hospital, Bangkok
4. Prapokklao Hospital, Chantaburi

ABSTRACT

A total of 125 sporadic cases of acute viral hepatitis admitted in Vachira hospital, Bangkok (urban) and Prapokklao hospital, Chantaburi (rural), Thailand from April 1988 to March 1989 was studied. The epidemiological pattern was found to be a little different between the two hospital, but there was no difference in the proportion of hepatitis A, B and Non-A, Non-B. Of the total 125 cases, 36 (28.8%) were confirmed as hepatitis A, 52 (41.6%) as hepatitis B and 37 (29.6%) as Non-A Non-B. Among the Non-A Non-B cases virus-like particles 27-32 nm in diameter were detected by Immune Electron Microscopy in the stool of eight cases (21.6%). The highest frequency of hepatitis A was among the younger age group (<15 years) while hepatitis B was found to

occur most in young adults of 15-24 years in both areas; and for Non-A Non-B, the highest frequency was in the age-group of 15-34 years in both areas, and only 35-44 years in urban area. The distribution of cases by type and sex was that male was predominant to female for all types (1.5:1). According to the seasonal variation, hepatitis A increased in summer and early rainy seasons, while hepatitis B and Non-A Non-B fluctuated throughout the year. Twenty-seven Non-A Non-B cases were followed up for 6 months, and no chronic sequelae were observed.

Identification of enterotoxigenic Escherichia coli by colony hybridization using nonradioactive-labeled trivalent probe

Hirofumi Danbara [*], Orn-anong Ratchtrachenchai [**], Aroon Bangtrakulnonth [**], Dumrong Chiewsilp [**]

[*] Department of Bacteriology, The Kitasato Institute, Tokyo, Japan

[**] Division of Clinical Pathology, Department of Medical Sciences, Thailand

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A 1,268 base pair polynucleotide probe for heat-labile and heat-stable enterotoxins (Lth, ST1a, ST1b) was conjugated with horseradish peroxidase (HRP). The HRP-conjugated trivalent probe was applied to the detection of enterotoxigenic Escherichia coli (ETEC) by colony hybridization. The binding of the probe to its targets was visualized by the addition of hydrogen peroxide and luminol in the presence of an enhancer and by exposure to X-ray film. ETEC and non-ETEC strains had been hybridized with the HRP-conjugated trivalent probe. The trivalent probe clearly identified bacterial colonies of ETEC producing LTh, ST1a, ST1b, LTh-ST1a, LTh-ST1b. These results suggest that the HRP-conjugated trivalent probe would be useful for the diagnosis of ETEC strains in the clinical laboratory.

Study on Virulence Factor of Enteropathogenic Bacteria

Krongkaew Suppawat

Division of Clinical Pathology

The purification of Cholera toxin (CT) specific immunoglobulin (IgG) and sensitization of latex with the purified IgG were accomplished by Dr. T. Satoh. A reversed passive latex agglutination test has been used for detection of CT of 01 and non 01 Vibrio cholerae. This technique could be applied for searching the virulence factor of other enteropathogenic bacteria.

Salmonella Surveillance by Plasmid Pattern Analysis in Thailand

Aroon Bangtrakulnonth
Division of Clinical Pathology, Department of Medical Sciences
Dr. Hirofumi Danbara
Department of Bacteriology, The Kitasato Institute, Tokyo, Japan

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This project is performed to study the epidemiological marker of Salmonella infection which was widespread all over the country.

For this purpose, WHO National Salmonella & shigella Center had performed the project of plasmid profiles analysis of Salmonella, besides the diagnostic by biochemical and serological test under the guidance of H. Banbara. We concentrated on 4 groups of Salmonella

1. Salmonella of most common serovars isolated for years continuously.
2. Salmonella of serovars caused septicemia.
3. Salmonella of serovars that have never been reported in Thailand.
4. Salmonella of serovars that resisted to antibiotics.

The pattern of plasmid DNA was carried out by Kado & Liu method. Total of 92, 89 strains of *Salmonella* Blockley and Salmonella Choleraesuis, the most common serovars, isolated in 1984-1989 from human, animals, food, water, animal food were analysed respectively.

We found that Salmonella Blockley which isolated from various sources possessed the same plasmid pattern. Whereas, Salmonella Choleraesuis frequently found in human and pig passessed the 50 kilobase plasmid in common. The results suggested a possible transmission process of Salmonella from animal and environment origin to human.

Future work plan

Molecular Epidemiology of Bacterial Infectious and Food Poisoning.

Phage Typing and Drug Resistance of Salmonella Isolated in Thailand

Renu Sunthad-vanich *

Aroon Bangtrakulnonth *

Srirat Pornruangwong *

Akiko Nakamura **

* Division of Clinical Pathology, Department of Medical Sciences

** National Institute of Health, Japan

Three subspecies of Salmonella isolated from human and raw food have been differentiated for phage types and drug resistance patterns. The phage lysates have been brought from Colindale, London by Japanese expert. The drug resistance patterns were carried out by both method of minimum inhibitory concentration and Kirby-Bauer method. Among 26 strains of S. Enteritidis isolated from human, 10 phage types were found and only 1 resistance pattern to Streptomycin in 7.7%. For S. Typhimurium 11 strains isolated from human and 21 strains isolated from raw food, 6 phage types, 2 resistance patterns were found in human. Ten phage types, 4 resistance patterns were found in raw food. The last subspecies was S. Hadar, which 17 strains isolated from human and 56 strains from raw food. There were 8 phage types, 4 resistance patterns from human and 8 phage types, 8 resistance patterns from raw food. More than 91% of all S. Hadar strains were resisted to Streptomycin and Tetracycline. This study is

valuable since it is the first report on phage type of these Salmonella in Thailand. In addition, we found that some phage types related to the multiple drug resistance.

Research on Melioidosis

Surang Dejsirilert, Naunchawee Wetprasit
Prapawadee Tishsayathicuma, Pimjai Naigowit
Tuanchi Watana
Division of Clinical Pathology

Melioidosis has been studied for three different purposes:

1. Epidemiological and environmental surveillance.

Environmental isolation for P. pseudomallei was performed by the cooperative study with Prof. Dr. E. Yabuuchi and Dr. M Ikedo. P. pseudomallei was isolated from 8 out of 137 soil samples and 1 out of 90 environmental samples, in three out of seven provinces in the north-eastern part of Thailand. The strains isolated from the environmental source will be further studied for their pathogenecity when compare with clinical strains.

2. Pathogenesis study

To understand the pathogenesis of P. pseudomallei the nature of this organism was studied under the guidance of Dr. K. Kanai and Dr. E. Kondo. We observed the growth characteristics of P. pseudomallei in environment of different nutrient, pH and aeration. The result shows that P. pseudomallei has the most adaptive nature to unfavourable undition. Nonspecific acid phosphatase activity of P. pseudomallei was studied, the result revealed that there were two enzyme components. One is heat (70° C, 20 min) resistant acid phosphatase with pH optimum 5.2 which is located

in outer membrane fraction. The other component with pH optimum 4.2 is heat labile. These two enzyme component may play some role in pathogenecity.

3. Diagnostic Purpose

The urgent expectation in Melioidosis Research was to establish rapid diagnostic method. Therefore, we want to determine the specific antigen of P. pseudomallei. Outer membrane protein is a candidate which we are concentrated on. Under the supervision of Dr. T. Ezaki we separated and analysed the outer membrane protein, including studied the immune response of melioidosis patients to this antigen. In our next step plan with Dr. Ezaki, we will clone plasmid which carry gene of this antigen and prepare polyclonal or monoclonal antibody against this outer membrane protein.

Extraction of Bacterial Lipopolysaccharides from Smooth and Rough Pseudomonas pseudomallei for Immunodiagnosis

Pimjai Naigowit, Vimol Petkanjanapong, Nuanchawee Wetprasit, Wanchai Maneeboonyoung, Dumrong Chiewsilp

Division of Clinical Pathology,

Department of Medical Sciences

Dr. Eiko Kondo

Department of Cellular Immunology,

National Institute of Health,

Japan

Lipopolysaccharide antigen is a major component of the outer membrane of Pseudomonas pseudomallei, which is extracted from heated cells by liquid phenol. Using the lipopolysaccharide antigen we prepared, a survey was made to measure the antibody level of 47 molioidosis sera, 55 non-melioidosis sera and 50 sera from healthy donors by both indirect hemmaglutination test (IHA) and enzyme linked immunosorbent assay (ELISA). The sensitivity, specificity and accuracy at IHA titer of > 1:160 were 81.4%, 91.4% and 88.1% respectively. As for ELISA cut off value > OD 320, the sensitivity, specificity and accuracy were 95.7%, 94.2% and 94.7%, respectively.

From these results we evaluated that ELISA was more sensitive and more specific than IHA test. The ELISA test is tenchni-

cally more rapid and reliable for the detection of antibody response to P. pseudomallei. It may be also of value in differentiating melioidosis from other infectious diseases.

Establishment of Reference System

Staffs from Section of Enteric and Miscellaneous Bacteriology

Division of Clinical Pathology

Staffs from 6 Medical Sciences Centers

by Surang Dejsirilert

Regarding the establishment of Reference System at the NIH, the following activities have been accomplished:

(1) Development of Bacterial Indentification Technique

Conventional identification technique was standardized under the supervision of Prof. Dr. R. Sakazaki, Dr. E. Yoshizaki, Dr. K. Sawatari and Prof. Dr. E. Yabuuchi and identification was made simplier by using computer softwere provided by Prof. Dr. Sakazaki and Dr. S. Kuramochi.

In addition to the conventional identification method base on physiological characteristics of bacteria, genetic characterization has been carried out. For example, the establishment of DNA-DNA hybridization techniques using radioactive - labelled probe for indetification of enterotoxigenic E. coli (ETEC) and enteroinvasive E. coli (ETEC) was acheived by the guidance of Dr. T. Yamamoto. Moreover, trivalent enterotoxins probe conjugate with non-radioistope for diagnosis of ETEC has been introduced by Dr. H. Danbara.

Besides genetic characterization to identify bacteria: chemical analysis of cell composition, such as cellular fatty -

acid has been performed by using gas liquid chromatography (GLC). Under the cooperative work with Dr. E. Kondo, the reliable system of GLC apparatus operation was set up and reproducible data was achieved. All the method described above are now put into our routine indentification work.

(2) Establishment of WHO National Phage Typing Center

(3) Establishment of Type and Reference Culture Collection

(4) Establishment of Mycoplasin a Laboratory

(5) Development of Surveillance System for Infectious Diseases Control.

The development of standard quantitative method for antimicrobial-susceptibility test of pathogenic bacteria was accomplished by Dr. T. Yamamoto to ensure more reliable testing for clinical purposes and provide update information on the drug - resistant pathogens in an outbreak of infection.

Furthermore, the plasmid profile analysis was carried out as a useful tool for epidemiological surveillance. Various methods were transfered by DR. H. Danbara.

In 1990, the Laboratory-Originated-Information System for Infectious Diseases Surveillance (LOIS) using microcomputer has been developed by Dr. M. Tusno. The LOIS will enable the Department of Medical Sciences to collect, process and analyze data from relevant laboratories on a nationwide scale and feed back these data for administrative use in controled diseases. This activities will be gradually extended to the regional medical sciences center.

6. Transfer Technology

In order to support the regional medical sciences centers to become regional reference laboratories, the following training courses sponsored by JICA were held.

- Principal in Isolation and Identification of Pathogenic Bacteria with Special Reference to Quality Control. Feb. 29 - Mar. 4, 1988.
- Identification of Glucose-Nonfermentative Gram-Negative Rod Bacteria. Dec. 18 - 22, 1989.
- Phage Typing of Staphylococcus aureus will be held on February 1991.

Laboratory - Originated - Information System for Infectious Diseases Surveillance. (LOIS)

Krongkaew Supawat, Vinita Boriraj, Renu Sunthadvanich,
Aroon Bangtrakulnonth, Orn-Anong Ratchtrachenchai,
and Dumrong Chiewsilp
Division of Clinical Pathology, Department of Medical Sciences.

Dr. Masaaki Tsuno,
Tokyo Metropolitan Research Laboratory of Public Health, Japan

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Information of Infectious diseases is almost represented by statistics on their morbidity and mortality. Computerized systems for gathering and compiling statistics of the notifiable diseases have already been established in Thailand. Now laboratory-based data provide important but limited epidemiological conclusions which lead to limited in intervention strategies. Relevant laboratory findings are also indispensable. Information network for these data, however have not always been well developed.

The laboratory - originated - information system "LOIS" has been developed by using personal/micro computer. Requirements for system were discussed, analyzed by laboratory staffs, then system design and programming of the original software has been employed. The LOIS will enable Department of Medical Sciences to

collect data from relevant laboratories on a nation wide scale and feed back these data for administrative use in controled diseases. This activities will gradually extend to the regional medical sciences center.

Development of Acellular Pertussis Vaccine

Teeranart Jivapaisarnpong

Division of Biological Products

Three batches of pertussis component vaccine have been produced by the stationary culture of Bordetella pertussis, Tohama strain in 1.5 litre Roux bottle. On the 7th day of cultivation, the culture fluid was harvested and clarified by centrifugation and membrane filtration, concentrated by ultrafiltration and purified by salting out with saturated ammonium sulfate, ultracentrifugation and sucrose gradient, zonal centrifugation and then detoxified by formalin. It was determined that the component proportion between PT and FHA of these purified bulk was about 1:3. Finally the bulk material was diluted and adsorbed onto aluminium hydroxide. The final products are now being tested for the quality control.

Pilot Study on the Production of Tissue Culture Rabies Vaccine

Prakorb Ruengrairatanaroju

Division of Biological Products

Three batches of tissue culture rabies vaccine has been produced by infection of the rabies virus seed, HEP-flurry strain to the stationary chick embryo fibroblast cell cultured in Roux bottle. After 6 days of infection, culture fluid was harvested, inactivated with BPL, concentrated via ultrafiltration and purified by ultracentrifugation. Then the product was freeze-dried in addition of 7.5% lactose, 1% sodium glutamate and 0.2% gelatin. Now the quality control tests are being performed.

Rubella vaccine production

Malinee Chittagampitch

Virus Research Institute

My experiences gained during a one year training at Haadai Biken Kononji Institute during 5 October 1987 to 5 October 1988 were method for monitoring of SPF flock, preparica of rubella working seed, production process of live attenuated rubella vaccine and quality control.

The technique for preparing rubella working-seed and vacine was applied to conduct at NIH by using the SPF quail-embryonated eggs for preparing QEF tissue culture. Now we have already prepared 2 lots of experimental rubella working seed using the rubella vaccine lot 401 (produced by Biken Co., Ltd) and determined virus content by plaque method. Quality control was performed by following WHO requirements (except neurovirulence safety test and detecting avian leukosis virus). The results show that all tests meet WHO requirments.

Production of rubella vaccine using experimental rubella seed was prepared. We obtained about 1,000 ml of single harvest. It will be filtrated, added stabilizers, lyophilized and tested for sterility (bacteria, fungi, mycobacterium, mycoplasma), virus content, inocuity test, identity test and moisture content. All tests are being carried out.

My present assignment are as follows: preparing rubella HAI test kit. Development of ELISA test for detect IgM rubella antibody is being carried out. However, there are some problems which should be solved such as how to save the HA titer after collect the fractions and precipitate by ultrauntrifugation, how to reduce the non-specific reaction of the assay. Isolation of rubella virus from patients specimens carried out by using RK-13 cell and the other cells.

Field Trial of Japanese Encephalitis Vaccine Produced in Thailand

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A. Srijaggrawalwong [1] and B. Panthumachinda [1]

1. Virus Research Institute, Department of Medical Sciences
2. Division of Epidemiology

Following to the success of the local production of JE vaccine by Department of Medical Sciences and the Government Pharmaceutical Organization under the support of JICA & BIKEN Foundation, 3500 doses of fluid purified mouse brain Nakayama vaccine were produced. A double-blind randomized field trial of the Thai Nakayama vaccine was carried out in 5-9 years old children in Ratchaburi Province to study the safety and the efficiency in comparison with that of JE vaccine produced in Japan, a Nakayama strain vaccine and a Beijing strains vaccine. Two doses of vaccine, 1.0 ml. of Nakayama and 0.5 ml. of Beijing, were given subcutaneously at 14 days interval. The clinical side-effects were observed daily for 14 days and once a week for one month. Sera were collected one month before the first dose, and one year after the second dose and tested with homologous virus for NT antibody.

No severe adverse reaction in all vaccinated children was noted. The mild side effects among the three groups of vaccinees were not different. Seroconversion demonstrated in non-immune children one month after having two doses of the Thai Nakayama, Biken Nakayama, and Biken Beijing vaccines, the rates were 99.4%

(G.M 122 ± 2.1), 97.0% (G.M 62±2.8) and 94.4% (G.M 83±3.4), respectively. The follow-up study of the sera collected from vaccinees on a year after vaccination revealed seroconversion rates of 94.3% (G.M 38 ± 2.6), 78.8 (G.M 19 ± 2.7) and 92.1% (G.M 58±3.8) after the Thai Nakayama, Biken Nakayama and Biken Beijing vaccines, respectively. Moreover it was found that among the non-immune unvaccinated control group, the antibody against Nakayama were 2.5% (G.M 5 ± 1.6) and 6.6% (G.M 6 ± 1.5) and against Beiijing-1 virus were 3.3% (G.M 5 ± 1.3) and 8.8% (G.M 6 ± 1.9) after one month and one year later, respectively.

It was concluded that JE vaccines produced in Thailand are as safe and effective as the vaccines made in Japan. Nakayama and Beijing-1 JE vaccines are not different in the clinical side-effects and the antibody responses. The NT antibody after 2 doses of JE vaccinee tested one year later showed high enough level to protect JE. The antibody responses among unvaccinated children showed natural transmission of JE in Ratchaburi.

The follow-up study for the duration of immunity will be further carried out for 5 years.

To find the most suitable vaccine strains for Thailand. The molecular biological study on the vaccine strains (Nakayama and Beijing-1) and the local Thai wild strains should be undertaken.

Insect Taxonomy and Reference Museum

Nipa Benjaphong

Division of Medical Entomology

I stayed in Japan for 1 year (March 6, 1989 - March 2, 1990). I have been trained in many field of taxonomy of medically important insects, especially various flies, midges and mosquitoes from view point of morphology, ecology, biochemistry and technique how to prepare taxonomic paper at Tokyo, Nagasaki, Kitakyushu and Okinawa. I have got lot of knowledges, experiences and techniques in a field of taxonomy. I visited some universities and museums which again gave me ideas that can be adopted to establish our reference museum. After I return to Thailand, I intend to establish a completed reference museum of medically important insects. Priority will be given to mosquitoes. I continue to study taxonomy of mosquitoes. I have a project "Studied on the Mosquito Fauna of Thailand". There are 384 species of mosquitoes were reported in Thailand. I try to have a survey and collect all specimens and arrange the specimens following the taxonomic system for the further basic study of mosquito control and taxonomic study.

Rodent and related diseases

Mongkol Chenchittikul
Division of Medical Entomology

I stayed in Japan for 1 year (June 21, 1989 - June 21, 1990) I have been trained in many fields of rodent and chigger ecology and also rodent-borne diseases such as tsutsugamushi diseases spotted fever and leptospirosis. I have got lot of knowledges and techniques from serological diagnosis of those diseases from the surveillance and epidemiological programme of tsutsugamushi disease. And also I have got some laboratory techniques of Rickettsia sp. and Leptospira sp. During I visited some institutes and attended a meeting, I have had an opportunity to exchange ideas with Japanese researchers which were very helpful to my future studies. After I return to Thailand, I intend to study on rodent-borne diseases for strengthening the surveillance and epidemiological programme such as scrub typhus, leptospirosis and other rickettsial diseases. The first priority is to establish rickettsial laboratory for surveillance of rickettsial diseases in Thailand.

Application of Histopathology and Immunofluorescence Method for Diagnosis of Mycotic Diseases

Natteewan Poonwan
Mycology Section Division of Clinical Pathology

At Kanonji Institute, Kanonji city, I had been trained in the following topics.

1. The histopathological change of tissue due to live vaccine by comparing with morphology of normal tissue, microscopically.
2. Preparation of virus antiserum and method of purification.
3. Detection of viral antigen in tissue section by immunofluorescence and immunoperoxidase method.
4. Preparation of the fluorescent antibody technique.

After returning to NIH Thailand I had started to set up the histopathology laboratory. We are ready to do the work for any laboratory in histopathological aspects. The establishment of this laboratory is successful by the guidance of Dr. Takeshi Muto. Then I have applied the histopathological technique for the diagnosis of mycotic diseases:- histoplasmosis, aspergillosis and candidiasis.

The method of preparation of virus antiserum has been applied to prepare Candida albicans rabbit antiserum which is one part of our research project, the production of antigen and antiserum of Candida albicans for the serodiagnosis. Our prepared reagent comes up to standard level comparing to CDC product. Now we are using our reagent for the diagnosis of candidiasis by immunodiffusion test in routine work accompany with cultural method. The reagent kit will be distributed to the Regional Medical Sciences Center in near future.

The technique of paraffin tissue section stained with indirect fluorescent antibody and immunoperoxidase have been applied to detect antigen for the diagnosis of aspergillosis in paraffin human tissue section. These technique was under the guidance of Dr. Takeshi Kurata by using our prepared Aspergillus rabbit antiserum.

The preparation of FITC-labelled measles virus antiglobulin was applied to prepare FITC-labelled Aspergillus antiglobulin for direct

fluorescent antibody staining. This is the another one research project of Mycology Section. Now our conjugated reagent is still unsatisfactory. We are trying to improve the reagent by removing the non specific reaction.

Future Plan: Diagnosis of Candidiasis in the immunosuppresive host by detection of mannan antigenemia

Mutagenicity Test and Chemical analysis

Nawaporn Anantashinkul
Division of Toxicology

The period of research training during 19th June, 1989 to 18th June, 1990 was divided into two parts. For the first part mutagenicity test had been studied for ten months at the University of Shizuoka. Two techniques of the mutagenisity test, which are Ame's test and Fluorometric umu-and ada-test, had been studied and applied to detect mutagens in Japanese food. Attach herewith is a report on "Fluorometric umu-and ada-test for detection of mutagens in food".

During the second part, I had stduied the chemical analysis including techniques of separations and methods to analyse chemicals by using various appliances, it look about two months at National Institute of Hygienic Sciences and Kaneko Research Institute.

The knowledge and experience gained during my training had been very useful to our department, especially, techniques of chemical analysis which could be applied promptly in my routine and research work. We, hopefully, the mutagenicity test will be considered to be used for further research in our laboratory. The methods should be useful in carry out the routine and research projects more effectively, especially, in the field of cosmetics, environmental factors and medical devices.

資料３　タイ医科学局人事（１９９０年１０月現在）

No. 0501/ 5995

Department of Medical Sciences
Yod-se, Bangkok 10100

October 12 , 1990

Dr. Komi Kanai
Japanese Project Leader
Research Promotion Project in NIH

Dear Dr. Kanai,

According to the recent reshuffle of some of our high ranking personals, we are pleased to send you the complete list of our administrative staff together with their present positions as detail shown on the attachment.

We should be grateful if you would kindly give us your continued assistance and cooperation.

Yours sincerely,

(Mrs. Sompop Ahandrik)

Deputy Director-General

Name	Position
Khunying Preeya Kashemsant	Director-General
Dr. Boonluan Phanthumachinda	Deputy Director-General
Dr. Renu Koysooko	Deputy Director-General
Dr. Sompop Ahandrik	Deputy Director-General
Mrs. Wantana Ngamwat	Principal Medical Scientist
Miss Amara Vongbuddhapitak	Principal Medical Scientist
Dr. ML. Ratanasuda Phan-urai	Principal Medical Scientist
Mrs. Pratummal Xumsaeng	Principal Medical Scientist
Dr. Chuinrudee Jayawasu	Acting Principal Medical Scientist
Mrs. Ponusa Wiriyakosol	Director, Office of the Secretary
Dr. Chongdee Wongpinairat	Director, Technical Coordinating Center
Mrs. Kanchana Leelasiri	Acting Director, Biological Products Division
Dr. Damrong Chiewsilp	Director, Clinical Pathology Division
Dr. Chakradharm Dharmasakti	Director, Health Sciences Research Institute
Mr. Prakong Phan-urai	Director, Medical Entomology Division
Mr. Kumol Sawadimongkol	Director, Research and Development of Medicinal Plants Division

Name	Position
Dr. Paijit Warachit	Acting Director, Virus Research Institute
Mrs. Sangthong Sawasdiphab	Director, Drug Analysis Division
Miss Srisit Karunyavanij	Director, Food Analysis Division
Miss Pranee Srisomboon	Director, Food for Export Division
Mr. Kul Boranintra	Director, Health Laboratory Quality Control Division
Miss Warank Boonchuay	Director, Narcotics Division
Mr. Suthee Chamnongchob	Director, Radiation Protection Services Division
Miss Nualta Muangnoicharoen	Director, Toxicology Division
Mr. Kiatisak Rukkiatsakul	Director, Regional Medical Sciences Center 1 (Songkhla)
Mr. Chalermsak Thongthamachat	Director, Regional Medical Sciences Center 2 (Chon Buri)
Mr. Suwat Munsawat	Acting Director, Regional Medical Sciences Center 3 (Nakorn Ratchasima)

Name	Position
Miss Supatra Im-erb	Director, Regional Medical Sciences Center 4 (Khon Kaen)
Miss Napaporn Puncha	Director, Regional Medical Sciences Center 5 (Chiang Mai)
Mrs. Tippawan Jittawikul	Director, Regional Medical Sciences Center 6 (Phitsanulok)

資料４　コーディネーティングコミッティ資料
（１２月１４日開催）

CO-ORDINATING COMMITTEE MEETING

6-1/1990

14 DECEMBER 1990

NATIONAL INSTITUTE OF HEALTH

Sixth Meeting

Coordinating Committee for Research Promotion Project

in

National Institute of Health

Conference Room A-203, NIH

13.30 hrs., Friday, 14 December 1990

AGENDA

1. Information from Chairman
2. Adoption of the report 5-1/1989, 22 December 1989
   (Attachment 1)
3. Matters for discussion :
   - 3.1 Report on administrative aspect of Technical Cooperation 1990. (Attachment 2)
     - Budget
     - Fellowships
     - Experts
     - Equipment
     - Training
   - 3.2 Achievement and progress of research activities 1990. (Attachment 3)
   - 3.3 Future prospects and plans (Attachment 3)
4. Others (if any)

Report of the Fifth Meeting of

Coordinating Committee for the Research Promotion Project in NIH

10:00 A.M., 22 December 1989

Conference Room A-203, National Institute of Health

Attending Committee

1.	Dr. Preeya Kashemsant Representative of Permanent Secretary and Director-General of Department of Medical Sciences	Chairman
2.	Dr. Nadhirat Sangkawibha	Honorable Consultant
3.	Mr. Vudhisit Viryasiri Representative of Department of Technical and Economic Cooperation	Member
4.	Mr. Hideo Miyamoto Assistant Resident Representative from JICA, Thailand Office	Member
5.	Dr. Komi Kanai Japanese Team Leader, NIH Project	Member
6.	Mr. Kohei Nakajima Coordinator, NIH Project	Member
7.	Dr. Boonluan Phanthumachinda Deputy Director-General Department of Medical Sciences	Member and Secretary

Evaluation Team

Dr. Ryosuke Murata — Team Leader
Former Director-General,
National Institute of Health,
Japan

Dr. Sakae Inoue — Member
Director, Division of Microbiology,
National Institute of Public Health,
Japan

Dr. Mitsuo Takagi — Member
Deputy Director, Kanonji Institute,
Research Foundation for Microbial
Diseases of Osaka University

Dr. Takeo Sasaki — Member
Staff, Medical Cooperation Division,
Medical Cooperation Department,
JICA

Non-attending Committee

1. Dr. Praves Wasi — Member
   Representative of Ministry of
   University Affairs
2. Dr. Sompop Ahandrik — Member
   Principal Medical Scientist,
   Department of Medical Sciences

3. Mrs. Wantana Ngam-Wat — Member
   Principal Medical Scientist,
   Department of Medical Sciences
4. Miss Amara Vongbuddhapitak — Member
   Principal Medical Scientist
   Department of Medical Sciences
5. Dr. Renu Koysooko — Member and Assistant Secretary
   Deputy Director-General,
   Department of Medical Sciences

Invited Participants

1. Mr. Masashi Iwano
   Secretary, Embassy of Japan
2. Dr. Chongdee Wongpinairat
   Secretary of Steering Committee
3. Dr. Boondee Atikij
   Assistant Secretary of Steering Committee

1. Information from Chairman

The meeting was chaired by Dr.Preeya Kashemsant, the Director-General of Department of Medical Sciences and representative of Permanent Secretary, Minsitry of Public Health. The Chairman briefly informed the Committee that Evaluation Team was at the NIH to evaluate the achievement of Research Promotion Project in NIH. The Team would also discuss with Thai authorities on the extension of NIH Project. The Team members consisted of Dr. Ryosuke Murata as the Team Leader, DR. Sakae Inouye, Dr. Mitsuo Takagi and Dr. Takeo Sasaki.

2. Adoption of the 4th Meeting report

The committee adopted the report of the 4th Coordinatiing Committee Meeting held on JUly 21, 1988 without any amendment.

3. Report and discussion

Report on administrative aspect of Technical Cooperation 1985-1989

Dr. Kanai summarized the project activities from the begining (1984) until present as appeared in attached sheet 2 distributed in the meeting.

Several Japanese Missions have been dispatched to survey, planning, follow-up and finally evaluate the NIH project. The Technical Cooperation has gradually developed from provision of equipment to technological transfer through experts. It is expected that the techniques or knowledge obtained will be further transfered to scientists in other developing countries through Third Country Training Program. The provision of annual budget, equipment, fellowships as well as the dispatch of experts were also summarized. Achievement of vaccine development activities as well as the highlight of technical transfer in various activities were also presented. Most research outputs were published in local and international journals. Summary of research activities and list of published articles were presented in attached sheets 3 and 4 distributed in the meeting.

Report on achievement and progress of research activities, Common Laboratory activities and Middle Level Staff Training Program

Dr. Boonluan Phanthumachinda briefed the achievement and progress of research activities, Common Laboratory activities and Middle Level Staff Training Program as appeared in attached sheet 4 distributed in the meeting. It has been suggested that more cooperation within and between Divisions be strengthened for better and more efficient research output.

Mr. Vudhisit Viryasiri, DTEC representative, expressed his satisfaction on the overall achievement of the project and encouraged the consideration of Third Country Training Program. Following the discussion on the matter, it is agreelable that the Evaluation Team convey the message to JICA whether it is feasible to set up such program at NIH. In connection to the establishment of the program, other supports such as facilities and budget must be taken into consideration.

Dr. Nadhirat Sangkawibha, honorable consultant commented that the appointment of Scientific Boaid as suggested by Dr. Praves Wasi be considered by DMS. The structure and functions of the Board should be carefully formulated so that the objective of Research Promotion Project in NIH can be achieved.

Future prospects and plans

The future plans of research activities as appeared in attached sheet 4 were approved by the Committee. Briefly, the application of modern technologies on the development of diagnostic techniques, production of biological products, molecular epidemiology as well as molecular studies of microorganisms will be promoted.

National Reference System in Clinical and Public Health Microbiology as well as Insect Reference Museum will be strengthened. Studies on integrated vector control and insect vector surveillance system will be emphasized. In addition, research on environmental health related to infectious diseases will also be conducted.

4. Approval of Joint Evaluation Report

The Evaluation Report prepared by Japanese Evaluation Team and Thai authorities concerned was presented, discussed and approved by the Committee.

The content consisted of summary of progress, performance and achievement of the Project based on the discussion with Thai counterpart personnel concerned. It has been proposed that the Technical Cooperation be carried out for 2 more years after July, 31, 1990 to attain the project objectives which emphasize mainly on infectious diseases. Following the extensive discussion, both sides agreed to include additional remark as appeared in appendix 1.

The Chairman expressed her appreciation for the cooperation of the Evaluation Team before the meeting was adjourned at 12.50 P.M.

Remarks from Project Leader

The remaining period of the present JICA project is substantially one year and a half. Our efforts should be concentrated now on to bring the on-going items to the successful conclusion.

I understand that the future plan for the DMS activities during the next few years is formulated in line with the policy of the 7th National Socioeconomical Development plan (1992-1996).

The working areas stated in this plan is rather extensive emphasizing the application of new biotechnologies to the diagnostic microbiology and the epidemiology of infectious diseases.

I think that our project activity is to cooperate with this plan. Meanwhile, the JICA-assistance in the extensive period is usually smaller in scale. Therefore, our team activities will cover only a part of the DMS future plan.

Fortunately, however, we have already had many experts in the past five years as you see in Attachment 1, and transfer of biotechnologies has been made over and over again as shown in Attachment 2. Actually, many counterparts are doing their job very nicely using transferred technologies as you could see in the Science Meeting of the last 2 days. In this situation, I would like to suggest that such technologies should be mutually exchanged among Thai counterparts.

It seems to me that the stage of cooperation by transfer of individual technologies is coming the end, so we should move to the stage of cooperative research on selected topics. Technologies will be settled down deeply in NIH by using them in daily research activities.

On the other hand, I have been asking the experts to write papers, when some good achievements have been made, if possible contributing to outside Journals. Because, I think that this is the only way to make Thai-NIH well-known in academic society. The papers so far published are listed in Attachment 3.

Thai-NIH is now equipped with modern facilities and instruments much better than the most Japanese and American institutes, if not enough. I hope that the NIH would be productive in public health service and research activity in the coming years.

DMS is responsible for many areas of public health. They are equally important, I believe. As far as my feeling is concerned, however. AIDS and related problems or food hygiene as consumer protection appear to be good topics which may stimulate JICA-concern.

This is the introduction for the next agenda which will be presented by Coodinator Mr. Nakajima.

Thank you

SUMMARY OF TECHNICAL COOPERATION
1985–1989

A: REFERENCE ACTIVITIES & MOLECULAR EPIDEMIOLOGY FOR INFECTIOU DISEASES		EXPERTS
1. BACTERIOLOGY	1. COSULTATION	Sakazaki, Miwatani, Honda
	2. FUNDAMENTAL CLINICAL BAÇTERIOLOGY	Sakazaki, Yoshizaki, Sawatari
	3. TAXONOMY	Yabuuchi, Kuramochi, Ikedo, Sakazaki
	4. SPECIAL BACTERIA: MYCOPLASMA	Kihara
	4. SPECIAL BACTERIA: P. PSEUDOMALLEI	Yabuuchi, Kondo, Ezaki
	5. SPECIAL IDENTIFICATION METHODS	
	PLASMID PATTERN	Danbara
	DNA HYBRIDIZATION	Danbara, Ezaki, Yamamoto
	GLC FOR FATTY ACIDS	Kondo
	PHAGE TYPING	Nakamura
	6. CHOLERA-TOXIN IDENTIFICATION KIT	Sato
2. MYCOLOGY	PREPARATION OF FUNGUS ANTIGEN	Kondo
3. VIROLOGY	1. CONSULTATION ROTA	Yamazaki, Urasawa
	1. CONSULTATION INFLUENZA	Nerome
	1. CONSULTATION JE	Yasui
	1. CONSULTATION AIDS, HERPES, HFRS	Yamanishi
	2. MOLECULAR EPIDEMIOLOGY OF ROTA VIRUS INFECTION	Taniguchi, Hasegawa
	3. MOL. EPIDEMIOL. OF INFLUENZA	Nerome, Yoshioka
	4. ISOLATION & IDENTIFICATION OF RS VIRUS	Ui
	5. VIROLOGY & IMMUNOLOGY OF HFRS	Tamura, Asada
	6. SEROLOGY OF RABIES	Tokiyoshi
	7. IMMUNOLOGY OF RUBELLA	Katow
	8. PREPARATION OF AIDS DIAGNOSTIC KIT	Yamanishi
	9. SET UP OF RICKETTSIA DIAGNOSTIC LABOLATORY	Ohtawara
	10. GENETIC ENGINEERING OFGENE EXPRESSION FOR ANTIGEN PREPARATION	ITAMURA

B: ENTOMOLOGY		
	1. PLANNING	Wada
	2. TAXONOMY & REFERENCE MUSIUM	Tanaka (Mosguito), Kurahashi (Fly
	3. ECOLOGY (SURVEILLANCE) OF MOSQUITOS	Mogi, Sasaki
	4. TICK (SURVEY & CONTROL)	Moriya
	5. RAT (SURVEY & CONTROL)	Yabe
	6. PESTICIDES	Hattori

C: EXPERIMENTAL ANIMAL CENTER		
	1. CONSULTATION	Fukui
	2. INTRODUCTION OF ANIMAL STRAINS FROM JAPAN	
	MICE (SPF)	Nakagawa
	GUINEA PIGS	Nakagawa
	RAT (HYPERTENSION MUTANT)	Nakagawa
	QUAIL (SPF)	Kanonji
	3. SET UP OF ANIMAL COLONIES AND CARE SYSTEM	Nakagawa, Asano
	4. MONITERING MICROBIOLOGY	Nakagawa
	4. MONITERING HISTOPATHOLOGY	Muto

D: VACCINE DEVELOPMENT		
	1. JE VACCINE PRODUCTION	Takagi, Yoshida
	1. JE VACCINE QC	Onishi
	2. RUBELLA VACCINE	Kanonji
	3. RABIES VACCINE	Sakamoto
	4. PERTUSSIS VACCINE	Kanonji

E: GENERAL METHODOLOGY	
1. STATISTICS & BIOASSAY	Iwasa
2. PROTEIN CHEMISTRY	Sato
3. RADIOIMMUNOASSAY & RI EXPERIMENT	Momomura, Katow
4. TISSUE CULTURE	Shimojo, Akamatsu, Mizusawa
5. MUTAGENICITY TEST	Sutow
6. NMR	Shichiji
7. P3 LAB.	Yamanishi
8. HISTOPATHOLOGY	Kurata
9. COMPUTOR	Horita
10. IMMUNOLOGY	SUZUTA

Technology Transfer in the Field of Life Science for NIH
(Transfer of Biotechnology)
(1986 - 1990)

Technology	Expert	Counterpart
DNA-hybridization	Dr. Takayuki Ezaki	Mrs. Surang Dejsirilert
	Dr. Tatsuo Yamamoto	Ms. Orn-Anong Ratchtrachenchai
		Ms. Wantana Praveenkittiporn
	Dr. Hirofumi Danbara	Ms. Orn-Anong Ratchtrachenchai
	Dr. Kouki Taniguchi	Dr. Yaowapa Pongsuwanna
PCR	Dr. Hotta	Mr. Poolsak Phomsuwansili
	Dr. Yutaka Takebe	Mr. Wattana Auwanit
	Dr. Morita	Ms. Suntharee Rojanasuphot
		Dr. Sumalee Boonmar
Nucleotide probe preparation	Dr. Takayuki Ezaki	Mrs. Surang Dejsirilert
Restriction analysis & DNA sequencing	Dr. Naokazu Takeda	Mrs. Kasama Supanaranond
	Dr. Kouki Taniguchi	Dr. Yaowapa Pongsuwanna
	Dr. Yazuyuki Yoshioka	Influenza Laboratory
	Dr. Saito	Dr. Sumalee Boonmar
Plasmid pattern analysis	Dr. Hirofumi Danbara	Mrs. Aroon Bangtrakulnonth
Preparation of monoclonal antibody	Dr. Konichi Yamanishi Dr. Tamura Dr. Asada	Ms. Panasda Israngkul Na Ayuthaya
	Dr. Yokio Tokiyoshi	Dr. Pornthip Samuthananon
Gene cloning	Biken	Ms. Wanpen Boonwanich
Immunofluorescent microscopy	Dr. Takeshi Kurata	Ms. Natteewan Poonwan Mrs. Pimjai Naigowit Mrs. Wimol Petkanchanapong
Preparation of tissue sections	Dr. Muto Dr. Takeshi Kurata	Ms. Natteewan Poonwan
Protein fractionation Toxin or Antigen	Dr. Sato	Ms. Krongkaew Supawat
	Dr. Eiko Kondo	Ms. Jotica Boon-long
		Mrs. Pimjai Naigowit
Microbial lipid analysis (TLC, GLC)	Dr. Eiko Kondo	Ms. Prukswan Chetanachan Mrs. Surang Dejsirilert Ms. Jotica Boon-long

1. Okuno, T., Takahashi, K., Balachandra, K., Shiraki, K., Yamanishi, K., Takahashi, M. and Baba, K. (1989) : Seroepidemiology of human herpesvirus 6 infection in normal children and adults. J. Clin. Pathol., 27, 651-653.

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3. Balachandra, K., Isarangkul Na Ayuthaya, P., Auwanit, W., Jayavasu, C., Okuno, T., Yamanishi, K. and Takahashi, M. (1989) : Prevallence of antibody to human herpesvirus 6 in women and children. Microbiol. Immunol., 33, 515-518.

4. Katow, S., Suginra, A. and Janejai, N. (1989) : Single-serum diagnosis of recent rubella infection with the use of hemmagglutination inhibition test and enzyme-linked immunosorbent assays. Microbiol. Immunol., 33, 141-145.

5. Ponsuwanne, Y., Taniguchi, K., Choonthanom, M., Chiwakul, M., Susansook, T., Saguanwongse, S., Jayavasu, C. and Urasawa, S. (1989) : Subgroup and serotype distributions of human, bovine, and porcine rotavirus in Thailand. J. Clin. Microbiol., 27, 1956-1960.

6. Pongsuwanna, Y., Taniguchi, K., et al. : Serological and genetical characterizations of bovine rotaviruses in Thailand by ELISA and RNA-RNA hybridization : Detection of numerous non-serotype 6 strains (submitted).

7. Taniguchi, K, Pongsuwanna, Y., Choonthanom, M., and Urasawa, S. (1990) : Nucleotide sequence of the VP7 gene of a bovine rotavirus (strain 61A) with different serotype specificity from serotype 6. Nucleic acid Research, 18, 4613.

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9. Boonmar, S. et al., Molecular cloning of hepatitis C virus cDNA from plasma of an implicated donor of post transfusion non-A, non-B hepatitis. Viral hepatitis and liver disease. (submitted).

10. Kubo, Y., Boonmar, S. et al. (1989) : A cDNA fragment of hepatitis C virus isolated from an implicated donor fo post-transfusion non-A, non-B hepatitis in Japan. Nucl. Acids Res. 17, 10367-10372.

11. Takeuchi, K., Boonmar, S. et al. (1990) : Hepatitis C viral cDNA clones isolated from a healthy carrier donor implicated in post-transfusion non-A, non-B hepatitis. Gene, 91, 287-291.

12. Takeuchi, K., Boonmar, S. et al., Primary structure of the hepatitis C virus structural region derived from human healthy carriers. Virology (submitted).

13. Kupradinun, S., Peanpijit, P., Bhodhikosoom, C., Yoshioka, Y., Endo, A., and Nerome, K. : First isolation of swine (H1 N1) influenza viruses from pigs in Thailand. (submitted)

14. Auwanit, W., et al. (1990) : Immunofluorescence, enzyme-linked immunosorbent assay, particle agglutination and western blot for the detection of antibody to human immunodeficiency virus type 1. Southest Asian J. Trop. Med. Public Health, 21, 53-59.

BACTERIOLOGY

1. Supawat, K., Ichinose, Y., Ishibashi, M., Ehara, M. and Naito, T. (1988) : A role of protease produced by Vibrio Cholerae in its adherent mechanism. Trop. Med., 30, 33-38.

2. Ichinose, Y., Supawat, K., Ishibashi, M., Ehara, M. and Naito, T. (1987) : A study on the enterotoxic factors in Vibrio cholerae infection. Trop. Med., 29, 211-219.

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7. Dejsirilert, S., Buttraporn, R., Chiewsilp, D., Kondo, K. and Kanai, K. (1989) : High acid phosphatase activity of Pseudomonas pseudomallei as a possible attribute relating to its pathogenicity. Japan. J. Med. Sci. Biol. 42, 39-49.

8. Yamamoto, T., Naigowit, P., Dejsirilert, S., et al. (1990) : In vitro susceptibilities of Pseudomonas pseudomallei to 27 antimicrobial agents. Antimicrob. Agents Chemother. 34, - .

9. Kanai, K. and Dejsirtlert, S. (1988) : Pseudomonas pseudomallei and melioidosis, with special reference to the status in Thailand. Japan, J. Med. Sci. Biol., 41, 123-157.

ANNUAL COOPERATION BY JICA

Fiscal Year (Aug.-Jul.)	Expert (Person)	Fellowship (Person)	Equipment (Annual Provision, Baht)	Equipment (By Expert, Baht FOB)	Middle Level Staff Training Programme (Baht)	Another Local Running Cost (Baht)
1985/86	10 Long Term 2 Short Term 8	8 Grant Aid 2 Tech. Coop.6	2,709,960 (22,000,000 Yen) (1 ¥ = 8.11 Yen)	1,141,341 (9,256,276 Yen)		300,000 (Project guide book)
1986/87	14 Long Term 1 Short Term 13	6 Grant Aid 1 Tech. Coop.5	3,476,227 (23,000,000 Yen) (1 ¥ = 6.61 Yen)	4,614,104 (30,499,233 Yen)	195,500 (1 Training Course)	177,500 (Training exchange programme) 60,000 (Annual report)
1987/88	24 Long Term 2 Short Term 22	6 Tech. Coop.6	8,138,764 (45,000,000 Yen) (1 ¥ = 5.52 Yen)	7,018,415 (38,741,652 Yen)	1,901,500 (19 Training Courses)	50,000 (NIH guide book) 153,800 (Annual report) 78,000 (Project guide, video tape)
1988/89	18 Short Term 18	7 Grant Aid 1 Tech. Coop.6	11,422,112 (60,000,000 Yen) (1 ¥ = 5.24 Yen)	4,735,508 (24,814,064 Yen)	1,705,450 (15 Training Courses)	295,000 (Office car) 88,000 (Research Seminar) 110,000 (Annual report)
1989/90	18 Short Term 18	7 Tech. Coop.7	8,939,489 (50,000,000 Yen) 5,364,806 (30,000,000 Yen) (1 ¥ = 5.59 Yen)	(7,314,019 Yen)	1,294,974 (13 Training Courses)	97,000 (Research Seminar) 120,000 (Annual Report)
1990/91	12 Long Term 1 Short Term 11	5 Tech. Coop.5	4,087,680 (25,000,000 Yen) (1 ¥ = 6.11 Yen)	(5,816,174 Yen) (Up to Dec.)	895,000 (8 Training Courses)	70,000 (Research Abstract) 102,000 (Research Seminar)
Total	96 Long Term 6 Short Term 90	39	38,774,232 (225,000,000Yen) 5,346,806 (30,000,000 Yen)	(116,441,418 Yen)	5,992,424	1,701,300

(Mean Exchange Rate by JICA as of Dec., 1990
1 Baht = 5.4 Yen)

Fellows as of FY 1990/91

Name	Period	Job	Affiliation
1. Ms. Wantana Praveenkittiporn (1989-1990)	3 months extension from October 1990	Enterobacterial microbiology	Juntendo University
2. Mrs. Kanchana Leelasiri	3 months from September 1990	Administration of vaccine production and Q.C.	NIH-Japan, Biken-Kanonji, Kaketsuken, others
3. Mrs. Raewadee Buttraporn	12 months from September, 1990	Microbiological monitoring of experimental animals	NIH-Tokyo Jichu-ken, others
4. Ms. Naiyana Kanogsunchanrat	12 months from October, 1990	Maintenance of analytical equipments	JICA-schedule (Fukushima, others)
5. Dr. Paijit Warachit	6 months from March, 1991	Virology in general	NIH-Tokyo (Murayama) for 4 months, observa tion trip for 2 montr
6. Dr. Chakradharm Dharmasakit	3 months from January, 1991	Administration for life science	Observation trip to appropriate institute JICA plan)
7. Dr. Khunying Preeya Kashemsant	2 weeks	Administration and management	Observation trip to appropriate institute (JICA plan)
8. Dr. Chongdee Wongpinairat	2 weeks	Administration and management	Observation trip to appropriate institute (JICA plan)

Experts List as of FY 1990/91

Expert	Counterpart	Period	Job
Dr. Masaaki Tsuno	Ms. Krongkaew Supawat	Aug. 15-Dec. 14, 1990	Surveillance system for bacterial infectious disease
Dr. Kuniaki Sakamoto	Mr. Prakorb Ruangrairatanaroj	Aug. 21-Dec. 28, 1990	Rabies vaccine development
Dr. Eiko Kondo	Mrs. Pimjai Naigowit Mrs. Surang Dejsirilert Ms. Natteewan Poonwan Mrs. Siriphan Wongwanich	Nov. 1, 1990-July 31, 1992	Diagnostic immunology and chemistry of melioidosis, mycosis, and anaerobic bacteria
Dr. Sabou Iwasa	Mrs. Teeranart Jivapaisarnpong Mr. Prayuth Buddhirakkul Mrs. Pimjai Naigowit	Nov. 5, 1990-Apr. 4, 1991	Q.C. of pertussis vaccine, Serology of pertussis
Dr. Motoyoshi Mogi	Ms. Usawadee Thavara Mr. Chitti Chansaeng	Nov. 7-Jan. 31, 1991	Mosquito ecology
Dr. Takeshi Kurata	Mrs. Pimjai Naigowit Ms. Natteewan Poonwan	Nov. 24-Dec. 16, 1990	Immunofluorescent microscopy for diagnosis of bacterial infection
Dr. Yutaka Takebe	Mr. Wattana Auwanit	Dec. 3-31, 1990	PCR technology
Dr. Naokazu Takeda	Mrs. Kasama Supanaranond	Dec. 10, 1990-Jan. 9, 1991	Molecular virology of AHC virus