

COMMITTEE ON RESEARCH

研究委員會

The Committee on Research is committed to financing and working closely with academics and industries' stakeholders for conducting promising and practical projects aiming to bring breakthrough in the prevention, diagnosis, assessment of disability, treatment and rehabilitation of pneumoconiosis and mesothelioma. Working towards this target, the Committee had another fruitful year in 2019, and the following table summarises our work during the year. The total expenditure spent in Research in 2019 was \$2.52 million.

Types of project	Number
New project approved	1
New projects declined	6
Projects completed	4
Project in progress	1

In order to fund topmost projects so as to bring the highest values to our patients and the stakeholders, the Committee adopts a rigorous and meticulous approach in vetting proposals. One project entitled "Inhibition of Warburg effect with a novel combination of dichloroacetate and niclosamide for therapy in malignant pleural mesothelioma" conducted by Dr SK Lam from The University of Hong Kong (HKU) was approved this year.

Led by Dr James Ho of HKU, Dr SK Lam, together with other team members, has been devoting much effort in exploring therapeutic advancement in mesothelioma. Although it is obvious that research, in particular in the area of drug development, is a long-term investment and concrete results often require a long time for manifestation, the Committee is confident that we are working on a right direction opening those unknown factors of the deadly disease bit by bit, and bringing hopes for a better treatment one day.

Although mesothelioma has been one of the key focuses of study in recent years, the Committee has also encouraged the conducting of a variety of other related researches. This could be reflected in the four projects completed during the year. Among these initiatives, two projects brought further insight for the treatment of mesothelioma and one introduced a tree bark extract showing preliminary results for inhibition of lung fibrosis. In addition to these medical researches, there was another one aiming for development of training and evaluation tools for those ethnic minority group construction workers in the prevention of pneumoconiosis and mesothelioma.

研究委員會一直致力透過撥款及與學者和業界持份者緊密合作，進行各類具備潛力及實用價值的項目，以期為肺塵埃沉着病及間皮瘤之預防、診斷、喪失能力評估、治療及復康方面帶來突破。朝着這方向發展，委員會於2019年有着另一個豐盛的年頭，以下圖表總結委員會各項工作，是年度用於研究的開支合共二百五十二萬元。

項目類別	數目
新獲批撥款項目	1
被婉拒項目	6
完成項目	4
進行中項目	1

為了資助最頂尖的項目從而為業界帶來最大的價值，委員會秉持嚴謹及一絲不苟的態度審批不同項目申請。委員會是年批出一項由香港大學林詩鈞博士進行，名為「利用二氯乙酸鹽和氯硝柳胺的組合抑制華寶效應從而治療惡性胸膜間皮瘤」之研究項目。

由香港大學何重文醫生領導，其中包括林詩鈞博士作為成員的團隊多年來致力於間皮瘤治療發展的研究。雖然眾所周知，研究項目，特別是關乎藥物研發的項目，屬長線投資而實在及可應用的結果往往需要一段時間萌芽，但委員會有信心團隊正朝着一個正確方向發展，並一步一步地解開間皮瘤這不治之症的各项謎團，最終為這個病症的治療帶來希望。

雖然間皮瘤為近年研究的重點項目，委員會亦一向支持進行不同方面之研究，這可見於在本年度完成的四個項目。在這四個項目當中，其中兩項為間皮瘤治療提供啟發性的發展方向，另一項研究初步數據則顯示一種樹皮提取物可阻止肺部纖維化之惡化；除上述有關醫學之研究外，更有一項目希望針對少數族裔建造業工人開發一套預防肺塵埃沉着病及間皮瘤的訓練及評估工具。

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The treatment of mesothelioma has gained prime attention in recent years, and the project conducted by Dr SK Lam of HKU and Dr William Wu of the Chinese University of Hong Kong (CUHK) did bring insight in the potential drug development of the disease. In the project conducted by Dr SK Lam, it was proved that difluoromethylornithine (DFMO) “showed its anticancer effects in adjuvant therapy and chemotherapy mesothelioma models”, while for the project conducted by Dr William Wu, it was found that “proteasome inhibition by Bortezomib suppressed malignant pleural mesothelioma (MPM)” and “Bortezomib in combination with autophagy inhibitors could produce synergistic anti-MPM effects in vitro and in vivo”. Although these findings were preliminary, they certainly provided a scientific foundation for the future design of clinical trials of therapy in mesothelioma.

More than 95% of our patients are pneumoconiosis patients and lung fibrosis reduces their quality of life. Unfortunately, lung fibrosis is incurable and irreversible, and same as mesothelioma treatment, there is no breakthrough in these areas in recent years. The project conducted by Prof Kenneth Lee of CUHK did shed light on this area. The study successfully demonstrated “the ability of TB129 (a tree bark extract) to suppress collagen synthesis on the silicotic lung fibrosis model based on RT-qPCR analysis; and histopathological examination of lung parenchyma also indicated a substantial decrease in the number of macrophages which was associated with a better resolution and reduced inflammation after TB129 treatment”. With the encouraging findings, Prof Kenneth Lee is planning to conduct further in vivo study for substantiation of the result.

In addition to the above medical researches, the project conducted by Dr Jo Jo Wong of CUHK contributed greatly to the prevention work of pneumoconiosis and mesothelioma targeted for the increasing number of ethnic minority groups in the construction industry. In the project, Dr Jo Jo Wong has developed various educational tools for those workers, and through on-site trainings provided to them, it proved that these tools were well-received by the minority groups. Not only did the project bring us a set of ready-to-use training tools, but it also helped the Board in developing long-term promotion strategy for prevention on pneumoconiosis and mesothelioma.

For all the advancement brought by our research works, the Committee on Research would like to thank members for their professional advice given in these years. The Committee will continue the hard work on researches aiming to bring practical and significant benefits to our patients as well as our high-risk workers.

近年很多研究人員對間皮瘤的治療研究愈見重視，而分別由香港大學林詩鈞博士及香港中文大學胡嘉麒博士進行之研究均為間皮瘤的藥物發展帶來啟示。林詩鈞博士在其研究中，引證依氟鳥氨酸在間皮瘤輔助治療和化療設定中顯示出的抗癌作用。而在胡嘉麒博士項目進行之體內及體外實驗中，則有新證據表明硼替佐米透過抑制蛋白酶體壓抑惡性胸膜間皮瘤生長，亦引證同時使用硼替佐米及壓抑自噬在壓抑惡性胸膜間皮瘤生長之協同效應。雖然這些結果均為初步發現，但可為未來間皮瘤治療的研究確立科學基礎。

另一方面，超過95%於基金委員會登記的病人為肺塵病患者，肺部纖維化嚴重影響病人的生活質素。不幸地，肺部纖維化是不可治愈及不可逆轉，而與間皮瘤治療一樣，治療方面近年亦未見突破。香港中文大學李嘉豪教授在其研究項目中為此帶來曙光，研究根據即時聚合酶連鎖反應分析，在矽塵引致肺纖維化動物模型中，證實樹皮提取物TB129可有效抑制膠原蛋白的合成；而在組織病理學檢查則顯示透過TB129可使巨噬細胞數量顯著下降，減少肺組織的破壞，達到治療肺纖維化的效果。李嘉豪教授正籌備進行進一步的體內研究，以引證這令人鼓舞的發現。

除上述的醫學研究外，由香港中文大學黃祖莉博士進行之研究為針對日益增加於建造業工作之少數族裔人士進行有關預防肺塵病及間皮瘤的預防工作帶來重大貢獻。黃祖莉博士於項目中為這些工友製作了不同教材，而透過實地培訓，證實教材甚受這群少數族裔工友歡迎。項目除為基金委員會帶來一套現成的教材外，亦對基金委員會制定長遠預防策略帶來一定幫助。

對於以上研究項目帶來的進展，研究委員會感謝各委員多年來所提供的專業意見。委員會定當於研究方面繼續努力，期盼為病人及面對高風險之工友帶來重要及實質之益處。