

第249回原医研セミナー

第14回放射線災害・医科学研究 機構・拠点研究推進ミーティング

以下のとおり開催いたしますので、ご参加くださいますよう、ご案内いたします。

開催日時：2023年10月24日（火）17時30分～

開催方法：オンライン

接続先：Zoom(ミーティング)ID：890 6191 5257

Zoom URL：

<https://us02web.zoom.us/j/89061915257?pwd=Uk93L2JWWDJ3dnFkYmkvSjFGN21DZz09>

Zoom パスワード：538773（上記 URL をクリックして参加する場合は入力不要です）

タイトル：Nagasaki University's Research Activities in Fukushima

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In March 2011, the Fukushima Daiichi Nuclear Power Plant accident led to the indefinite evacuation of residents living within 20km of the power plant. After the decontamination and rebuilding efforts, the towns in the Hamadori region of Fukushima prefecture sought to welcome back their former residents as a part of the recovery process. However, locals remained uncertain regarding the radiation-related risks of residing in Kawauchi, Tomioka, Okuma and Futaba towns.

To support the recovery of these towns, Nagasaki University established satellite offices in collaboration with the local governments. With the intention of building a “radiation protection culture”, the university sought to provide resources and information to enable the evacuees and residents to make informed decisions about their daily lives. This involved sending surveys to the affected locals to ascertain their concerns, and then conducting risk communication activities such as health consultations, health promotion and dose measurements in the environment, produce and sea. The surveys revealed that locals were most concerned about radiation-related effects on health, genetics and from consuming food and water from the affected towns. This anxiety affected the responders' intention to return to their hometowns from their evacuation sites and their mental health. Based on the different groups of responders and their risk perception and intention to return profiles, risk communication strategies were developed.

In Okuma, it was found that the elderly had a 1.4 times higher odds ratio for having anxiety regarding radiation-related health effects on future generations and a 1.3 times higher odds ratio for wanting to know about the release of FDNPP-treated water into the environment than the younger group. Elderly residents also demonstrated a 2.2 times higher odds ratio for reporting poor physical health than younger residents.

From 2017 to 2021 in Tomioka, the proportion of responders who had already returned/wanted to return and those who did not want to return increased by 3.2% and 6.8%

respectively, and the proportion unsure about returning decreased by 10.1%. Anxiety for self-health decreased by 15.4%, genetic effects decreased by 24.4%, food consumption decreased by 30.9%, and the latter 2 remained significant factors among responders unsure of returning and among those who did not want to return in 2021.

In Futaba, 74.0% of respondents had expectations for the reconstruction of the town, and similar proportions for the recovery of workplaces, farming, and residential areas. Among these respondents, 11.3% had already returned or expressed a desire to return to Futaba, and 4.2% stated that they did not wish to return. Respondents who were not concerned about treated water being released into the sea, drinking tap water from Futaba, and experiencing health effects from radiation exposure and genetic effects had higher expectations of the town's recovery.

Concerning the release of treated water into the Pacific Ocean, 40% of Okuma and Tomioka responders were accepting of the idea, 31.4% were unsure and 29.7% objected to the release plans. A multinomial regression analysis revealed that, compared to those who accepted the release plans, those who objected were more likely to be female, unemployed and have anxiety about radiation-related genetic effects and poor mental health. Respondents who reported feeling unsure were similarly more likely to be female, anxious about radiation-related genetic effects and to report poor mental health.

It is crucial to measure and track risk perception and the intention of evacuees to return to their hometowns in Fukushima prefecture. Traumatic and chronic effects of a disaster can result in poor mental health and a high perception of risk among affected communities. Encouraging locals to participate in risk communication sessions and activities can help clarify uncertainties and reduce radiation-related anxiety.

タイトル：ヒト子宮頸癌細胞の増殖および代謝に及ぼすセシウムの影響に関する研究
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アルカリ金属元素のひとつであるセシウム(Cs)のマクロな動態はある程度知られているが、ミクロな動態、つまり細胞に対する生物学的影響については殆ど知られていない。本研究ではCsが子宮頸癌細胞であるHeLa細胞の増殖に影響を検討した。Csは用量依存的にHeLa細胞の増殖を抑制し、その抑制効果は可逆的であった。増殖が旺盛な細胞では等の利用が亢進していることが知られているため、Csが解糖系に影響与えていると予想し、より詳細な研究を行った。解糖系に関わる酵素の活性が低下していることを明らかにした。また、細胞内[NAD⁺]/[NADH]比はCs処理により増加していた。このことはCs処理細胞において解糖速度が低いことを示している。これらの結果から、Cs処理による細胞増殖抑制の要因の一つは、Csによって解糖系経路が抑制され、細胞増殖に必要な十分なエネルギーを解糖系から得ることができなかつたと考えられる。