

where the pre-activation of hUCB-MSCs with Ntn-1 significantly improved the vascular regeneration. Ntn-1 had a significant proliferative effect on hUCB-MSCs mainly via integrin (In) $\alpha 6\beta 4$ coupled with c-Src activation. The hUCB-MSC proliferation induced by Ntn-1 was highly susceptible to the knock down of Rac1 and the sequestration of membrane cholesterol. We found that Ntn-1 induced the recruitment of NOX2 and NCF1 into membrane lipid rafts coupled with Rac1 to facilitate the production of reactive oxygen species (ROS). The In $\alpha 6\beta 4$ signaling of Ntn-1 through ROS production is uniquely mediated by the phosphorylation of redox-sensitive transcription factor SP1, which is responsible for the expression of G₁/S cell cycle checkpoint proteins as well as the transcriptional occupancy on the VEGF promoter. In addition, Ntn-1 has ability to induce the cytoskeletal reorganization of hUCB-MSCs via the In $\alpha 6\beta 4$ signaling pathway.

Conclusions: Ntn-1 plays an important role in the bioactivity of hUCB-MSCs via the lipid-raft-mediated In $\alpha 6\beta 4$ signaling pathway, which is necessary to govern the regulation of cell proliferation, VEGF expression, and F-actin reorganization.

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Analysis of Insecticides in gastric contents of dead animals in 2015

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Introduction: Insecticides are widely used to agriculture throughout the world since the middle of the 20th century to prevent insects in plants and to inhibit outbreak of diseases carried by insects to human and animals. Benefits of insecticide are quite varied but the damages are appalling, especially when misused. Insecticides may induce toxicity non-target species either directly or indirectly through accumulation in the environment. In this study, we investigated insecticides in the gastric contents of dead animals requested to the Animal and Plant Quarantine Agency (Gyeonggi-do, Korea) in Korea in 2015.

Materials and Methods: We analyzed residual insecticides in the gastric contents from the dead animals which were suspected insecticide poisoning based on the necropsy requested to the Animal and Plant Quarantine Agency in 2015. The procedure of extraction and cleanup of sample is based on the modified QuEChERS technique and insecticides analysis was done using gas chromatography with flame photometric detector and mass spectrometry.

Results: A total of 162 gastric contents samples of 26 species were analyzed in this study and insecticides were determined in 14.19% of the total samples analyzed. Phosphamidon and monocrotophos were the most common insecticides identified. Other organophosphates (i.e.

phorate, fenthion, fenitrothion, parathion, terbufos, dichlorvos), organochlorines (i.e. endosulfan) and carbamates (i.e. methomyl) insecticides were also found in various concentrations from dead animals.

Conclusions: Insecticide poisoning in wildlife is substantially reported around the world. Insecticide poisoning can occur under various circumstances and may include misuse or accidental exposure. But intentional killing of unwanted animals also occurs. This investigation indicates the insecticide contamination status of animals in Korea and suggests that insecticides poisonings will continue to be a cause of death in animals. More attention should be paid to insecticide poisoning and future work to reduce the number of insecticide deaths will need to preservation of animals.

References

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Results of monitoring and surveillance testing of veterinary drug residues in domestic meats in 2015

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Introduction: The Korean National Residue Program (NRP) consists of three sampling plans for domestic foods of animal origin: monitoring, surveillance and exploratory testing. Monitoring and surveillance testing programs are routinely implemented by 17 Provincial Veterinary Services for domestic foods. The target species of KNRP were food-producing animals including cattle, pigs, chicken, duck, sheep (goat), and horses. The residue sampling was focused on veterinary drug and pesticide residues in animal tissues such as muscle, kidney and liver. The NRP for domestic residue testing serves as a control system for chemical residues and contaminants in foods of animal origin in Korea. In this study, we investigated on the results of monitoring of domestic meat for the residues of veterinary drugs and change in trend of violation after the surveillance of the system in 2015.

Materials and Methods: According to monitoring sampling plan, tissues from slaughtered animals were randomly collected at the slaughterhouse and sent to AHLs to test for antibiotics, synthetic antimicrobials, other veterinary drugs, and pesticides. For the surveillance testing, the samples were taken from suspicious individual animal or group of animals at the slaughterhouse by the same sampling procedure. On the basis of the "Korean Food Standards Codex" of KFDA or "Manual of analytical methods for livestock and fishery products" of QIA, veterinary drug residues were analyzed using a bioassay for screening purposes and by HPLC and LC-MS/MS for confirmation and quantification. The results