Chemokine (C-X-C motif) ligand 6 (CXCL6) is a small cytokine belonging to the CXC chemokine family that is also known as granulocyte chemotactic protein 2 (GCP-2). As its former name suggests, CXCL6 is a chemoattractant for neutrophilic granulocytes.

It elicits its chemotactic effects by interacting with the chemokine receptors CXCR1 and CXCR2.

The gene for CXCL6 is located on human chromosome 4 in a cluster with other CXC chemokine genes.

Pro-inflammatory chemokines CCL5 and CXCL6 are released by induced degenerative discs, and CCL5 has been associated with discogenic back pain. A case-control study was performed, based on the Hong Kong Disc Degeneration Population-Based Cohort of Southern Chinese, to investigate if systemic levels of CCL5 and CXCL6 were elevated in subjects with disc degeneration compared to non-degenerated individuals. Eighty subjects were selected, 40 with no disc degeneration (control group; DDD score 0) and 40 with moderate/severe disc degeneration (disc degeneration group; DDD score ≥5) as noted on MRI. Subjects were matched for age, sex, body mass index and workload. Blood plasma samples were obtained from each individual, and levels of CCL5 and CXCL6 were measured. Secondary phenotypes of lumbar disc displacement and cervical disc changes were also assessed. CCL5 concentrations were significantly increased in the disc degeneration (mean: 19.8 ng/mL) compared to the control group (mean: 12.8 ng/mL) ($p = 0.015$). The degeneration group demonstrated higher levels of CXCL6 (mean: 56.9 pg/mL) compared to the control group (mean: 43.4 pg/mL) ($p = 0.010$). There was a trend towards elevated CCL5 levels with disc displacement in the degeneration group ($p = 0.073$). Cervical disc degeneration was not associated with elevated chemokine levels ($p > 0.05$). This is the first study to note that elevated systemic CCL5 and CXCL6 were associated with moderate/severe lumbar disc degeneration, further corroborating tissue studies of painful discs. These chemokines may be systemic biomarkers for the diagnosis and monitoring of disc degeneration [1)].

1)
Grad S, Bow C, Karppinen J, Luk KD, Cheung KM, Alini M, Samartzis D. Systemic blood plasma CCL5 and CXCL6: Potential biomarkers for human lumbar disc degeneration. Eur Cell Mater. 2016 Jan 5;30:1-10. PubMed PMID: 26728495.