from 52 joints of 16 normal Thoroughbred horses, collected bi-
laterally from carpal joints of 10 horses (n=40), and MP joints of
6 horses (n=12). A previously validated commercially available
immunoassay was used to determine equine SF BAP concen-
trations.

**Results:** SF BAP concentrations from the carpal joints of normal
horses were 2.2 times higher than SF BAP concentrations from
the MP joints of normal horses (P<0.05; Figure 1). SF BAP concen-
trations from OC injured carpal joints were 2.7 times
higher than concentrations from OC injured MP joints (P<0.001).
In addition, SF BAP concentrations from the OC injured carpal
joints were significantly higher than from normal carpal joints
(P<0.001). However, there was no significant difference between
SF BAP concentrations from normal and OC injured MP joints.
When combining the OC injured carpal and MP samples, SF BAP
concentrations were positively correlated to the joint that was
affected (R=0.554, P=0.0001).

**Conclusions:** Synovial fluid analysis of a bone biomarker such
as BAP can be used to demonstrate joint specific differences in
normal and OC injured joints.

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**RELATIONSHIPS AMONG AND DISCRIMINATORY ABILITY OF INFLAMMATORY MEDIATORS IN SERUM AND SYNOVIAL FLUID IN A CROSS-SECTIONAL OSTEOARTHRITIS COHORT**

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**Purpose:** Examine the relationships between inflammatory me-
diators measured in serum and synovial fluid in a cross-sectional
osteoarthritis cohort. Explore the ability of a marker or group of
markers to distinguish among sub-groups in this cohort.

**Methods:** A cross-sectional cohort composed of 6 different sub-
groups including healthy volunteers (REF n=23), patients with
either acute pyrophosphate arthritis (APA n=17), anterior cruci-
ate ligament rupture isolated or combined with another ligament
(LI n=146), meniscal tear (MT n=70), osteochondral fracture (OC
n=19), primary knee osteoarthritis (OA n=46) for a total of 321 pa-
\[\text{Patients. One sample of knee synovial fluid (SF) and serum (S) at 1}
\[\text{time point, varying between 0 days and 26 years after knee injury}
\[\text{or onset of symptoms, were analyzed. Analytes measured using}
\[\text{the Luminex platform included cytokines/chemokines, adipokines}
\[\text{and acute phase proteins (LINCOplex assays, Millipore). Hierar-
\[\text{chical clustering was performed in the R statistical programming}
\[\text{environment on the matrix of Hoeffding's D statistics from serum}
\[\text{and synovial fluid markers. Canonical discriminant analyses were}
\[\text{performed on selected diagnostic categories using SAS. The fi-
\[\text{nal model arbitrarily selected the most predictive 10 markers from}
\[\text{a stepwise procedure. All analyses used logarithmic-transformed}
\[\text{values of the marker data.}

**Results:** Comparison of the 6 patient groups for all analytes in S
showed that CRP and SAA levels were elevated in the APA group
compared to all other groups (p<0.05). IL-6, CCL3/MIP-1α and
GM-CSF levels were elevated in the OC group when compared
to the LI, MT and OA groups (p<0.05) but not when compared to
the REF or APA groups. The median level of CXCL8/IL-8 was
also elevated in the APA and OC groups compared to all other
groups (p<0.05). Resistin concentration was elevated in the
APA and OC groups compared to the LI, MT and OA groups
(p<0.05) but not when compared to the REF group. Finally,
CCL2/MCP-1 was significantly higher in the OA group when
compared to the REF, LI and MT groups (p<0.05). Comparisons
of the 6 patient groups for all measured analytes in SF showed
that IL-6, Resistin and SAA levels were elevated in the APA group
compared to all other groups (p<0.05). IL-8, IL-10, act-PAI-1 and
CRP were elevated in the APA group (p<0.05) compared to all
other groups except of the OC group. CXCL10/IP-10 was
also elevated in the APA group when compared to all other
groups (p<0.05) with the exception of the REF group. Finally,
SAP was elevated in all groups (p<0.05) when compared to the
REF group. Hierarchical variable clustering allowed identifying
related pairs or groups of markers in both matrices but none
was specific to any of the subgroups, nor did any cluster allow
reclassifying the patients in their respective subgroups. However,
when a discriminant analysis was performed using data for each
marker in S and SF as well as their ratios, a set of 10 markers
was capable of discriminating the patients belonging to the REF,
APA and OA subgroups.

**Conclusions:** While several individual, pairs or groups of mark-
ers were found to be elevated within one or more subgroups or
found to correlate in S, SF or both, no significant correlation could
be established with any clinical parameter analyzed. However, a
ten-marker set discriminated three subgroups (i.e., REF, APA and
OA).

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**CARTILAGE BIOMARKERS IN URINE - ANALYSIS AFTER ANTERIOR CRUCIATE LIGAMENT TRANSSECTION**

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**Purpose:** Cartilage biomarkers are expected to monitor changes
of inheritable or spontaneous cartilage disease, after surgery or
drug treatment. A frequently used animal model of osteoarthri-
ts is transection of the anterior cruciate ligament (ACLJ) of
the rabbit which leads to osteoarthritis (OA) - like changes of the
cartilage structure. In this study, different types of collagen degra-
dation biomarkers were measured in urine: hydroxylysylpyridi-
noline (HP), lysylpyridinoline (LP) and the C-terminal crosslinked
teoleptope of type II collagen (CTX-II).

**Methods:** New Zealand White rabbits were treated in two groups:
transsection of the anterior cruciate ligament (ACLJ) and sham
surgery. Each group consisted of 32 rabbits, 8 rabbits per group
were sacrificed at 2, 4, 8 and 12 weeks respectively. A medial parapatellar approach was used to transect the ACL under complete visualisation. Sham surgery consisted of a com-